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The first penicillate millipedes from the vicinity of Manaus, Central Amazonia, Brazil (Diplopoda: Polyxenida)

by

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Abstract

Two new and an undetermined/unnamed species in the penicillate diplopod genera *Lophoturus* BROLEMANN, 1931 and *Macroxenodes* SILVESTRI, 1948 are described from the vicinity of Manaus, Central Amazonia, Brazil: *L. adisi* n.sp., *M. amazonicus* n.sp., and *M.* sp.. *L. adisi* n.sp. is characteristic in having the molar plate with a swollen dorsal molar plate shoulder of the mandible, while *M. amazonicus* n.sp. in having three thick bacilliform dorsal sensilla separated from a second group of posterior ventral sensilla on antennal segment VI, the gnathochilarium with 21 to 23 palpal sensilla and the femoral and tibial setae with an oval base furnished with 3 or 4 long spines. Also, *L. adisi* n.sp., which is the dominant species at the locality, has been investigated as to its postembryonic stadia and mandibular structure. On the other hand, *M.* sp. is characteristic in having more numerous sensilla located in one or two rows in the dorso-distal part of antennal segment VI, in the tergal trichomes grouped in two separated oval areas, and in 22 or 23 palpal sensilla. *Plesioproctus* CONDÉ, 1964 is shown to be a junior synonym of *Ancistroxenus* SCHUBART, 1947, n. syn. The synonymy results from a revision of type material of the Brazilian *Ancistroxenus tupiensis* SCHUBART, 1947. *Plesioproctus comans* (LOOMIS 1934), from Trinidad, is formally transferred to *Ancistroxenus*, resulting in *A. comans* (LOOMIS 1934), n. comb., a species which is also a subjective senior synonym of *Ancistroxenus tupiensis* SCHUBART, 1947, n. syn.. *A. comans* has been recorded from the study region for the first time, and its postembryonic stadia are fully redescribed. A key to the genera of the family Lophoproctidae is given.

Keywords: **Diplopoda, Penicillata, new species, taxonomy, key, Manaus, Amazonia.**

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Introduction

The penicillate Diplopoda is a group possessing characteristic tufts of trichomes on the body. Penicillates are widely distributed from the tropics to the Arctic zone, with about 100 species so far described.

To date, eight species of penicillate diplopods have been reported from Brazil: *Polyxenus superbus* SILVESTRI, 1903; *P. lepagei* MELLO-LEITÃO, 1925; *P. senex* MELLO-LEITÃO, 1925; *Monographis tamoyoensis* SCHUBART, 1939; *Macroxenus caingangensis* SCHUBART, 1944; *Ancistroxenus tupiensis* SCHUBART, 1947; *Phryssonotus* sp.; and *Macroxenodes* sp. (CONDÉ 1971).

J. ADIS and his colleagues investigated the abundance, phenology and natural history of the terricolous and arboricolous arthropods in a mixedwater inundation forest (cf. AMARAL et al. 1997) at Lago Janauarí near Manaus (03°20'S, 60°17W'), Central Amazonia, Brazil from July 1987 to June 1988. Recently, about 1,800 penicillate diplopod specimens collected by soil extraction (K), ground photo-eclectors (emergence traps; E10-13) and arboreal photo-eclectors (trunk traps) for trunk ascents (BE49) and descents (BE50) from the above forest were provided to us by him for taxonomic study (for methodology and study site see ADIS 1987, 1988; ADIS et al. 1996; MORAIS et al. 1997 a, b; VOHLAND & ADIS 1999).

In the present paper, two new species, *Lophoturus adisi* n. sp. and *Macroxenodes amazonicus* n. sp., are described, and another, yet unnamed species of the genus *Macroxenodes* SILVESTRI, 1948, which is only based on a single adult specimen, is recorded. Furthermore, *L. adisi* n. sp., a dominant species at this locality, is studied as to its postembryonic stadia. In addition, based on a revision of type material of *Ancistroxenus tupiensis* SCHUBART, 1947, kept in the Museu de Zoologia, Universidade de São Paulo, its synonymy with *Plesioproctus comans* (LOOMIS 1934) is established (n. syn.). These two species are thus treated as a single species, *Ancistroxenus comans*, n. comb., which is fully redescribed, with notes given on its postembryonic stadia. A key to the genera of the family Lophoproctidae is provided.

Type material of both new species described herein has been shared between the collections of the Instituto Nacional de Pesquisas da Amazônia, Manaus (INPA), Collection J. ADIS, Plön (CA), the collection of the Museu de Zoologia, São Paulo (USP) and Muséum national d'Histoire naturelle, Paris, France (MHNP), as given below: holotype, allotype and about 50 % (35 males and 31 females) of all the paratypes in INPA, each 20 % (14 males and 14 females) paratypes in CA and USP, and 10 % (6 indi. in each sex) in MNHP. The all non-types are deposited in INPA. Some materials used for SEM has been kept in the Collection K. ISHII, Japan (CI).

Taxonomic part

Lophoturus adisi n.sp.

Types

Holotype, adult male (INPA), Brazil, Amazonas, environs of Manaus, Lago Janauarí (03°20'S, 60°17'W), mixedwater inundation forest, K26, 12.04.1988, J. ADIS et al. leg., allotype, adult female (INPA), same data as holotype. Paratypes: adult 1male, 3 females (INPA), same data as holotype.

Paratypes: 1 adult female (INPA), Brazil, Amazonas, environs of Manaus, Lago Janauarí (03°20'S, 60°17'W), mixedwater inundation forest, K30, 10.10.1987, J. ADIS et al. leg.; 1 adult female (INPA), K21, 14.03.1987; 2 adult males (INPA), K19, 14.03.1988; 1 adult male (INPA), K24, 14.03.1988; 1 adult male, 1 adult female (INPA), K31, 14.03.1988; 1 adult female (INPA), K12, 14.03.1988; 5 adult males (INPA), 3 adult females (USP), K18, 14.03.1988; 3 adult males, 2 adult females (INPA), K30, 14.03.1988; 2 adult males, 9 adult females (INPA), 14 adult males (USP), K10, 12.04.1988; 2 adult males, 6 adult females (INPA), K18, 12.04.1988; 5 adult males, 3 adult females (INPA), K22, 12.04.1988; 5 adult males, 3 adult females (INPA), K22, 12.05.1988; 1 adult male, 3 adult females (INPA), K27, 12.05.1988; 2 adult females (INPA), K28, 12.05.1988; 6 adult males (INPA), 11 adult females (USP), K30, 12.05.1988; 6 adult males (CA), BE50A, 14.07.1987; 2 adult males, 1 adult female (CA), K15, 14.03.1988; 1 adult male, 3 adult females (CA), K26, 12.04.1988; 3 adult males, 4 adult females (CA), K30, 12.04.1988; 2 adult males, 6 adult females (CA), K26, 12.05.1988; 1 adult female (MHNP), K18, 12.05.1988; 1 adult male, 1 adult female (MHNP), K27, 12.04.1988; 1 adult male, 3 adult females (MHNP), K27, 12.05.1988.

Other material examined.

At the same locality as for holotype: 2 adult males: BE50A, 01.07.1987, J. ADIS et al. leg.; 1 female of larva stadium VI, 1 female of stadium VII, 1 adult male, 2 adult females: BE50A, 31.07.1987; 1 female of stadium VII: BE50B, 31.07.1987; 1 adult female: BE50C, 31.07.1987; 3 adult males, 6 adult females: BE50C, 14.08.1987; 4 adult males, 7 adult females: BE50D, 14.08.1987; 1 adult female: BE50B, 01.09.1987; 1 stadium II: K16, 14.09.1987; 2 stadium III: K18, 14.09.1987; 1 stadium II: K19, 14.09.1987; 7 stadium II: K23, 14.09.1987; 2 stadium II: K25, 14.09.1987; 1 stadium I, 1 stadium III, 3 stadium IV, 2 stadium V, 1 male of stadium VI, 1 female of stadium VI, 2 males of stadium VII, 2 females of stadium VII, 1 adult female: E12, 30.09.1987; 1 stadium I, 1 stadium II: K22, 13.10.1987; 1 stadium IV, 2 stadium V: K23, 13.10.1987; 1 stadium V: K24, 13.10.1987; 1adult female: K26, 13.10.1987; 1 stadium V, 1 male of stadium VI, 1 female of stadium VI: K30, 13.10.1987; 1 stadium II, 1 stadium V: K31, 13.10.1987; 1 stadium V: K32, 13.10.1987; 1 female of stadium VI: K33, 13.10.1987; 1 female of stadium VI: K10, 10.11.1987; 1 stadium IV: K11, 10. 11.1987; 1 stadium V: K12, 10.11.1987; 1 female of stadium VI: K13, 10.11.1987; 1 male of stadium VII: K14, 10.11.1987; 1 stadium IV, 2 stadium V, 1 male of stadium VII, 1 adult male: K16, 10.11.1987; 1 male of stadium VI: K18, 10.11.1987; 2 stadium III: K19, 10.11.1987; 1 stadium III, 2 stadium V, 2 adult females: K20, 10.11.1987; 2 stadium II, 1 stadium V: K28, 10.11.1987; 2 stadium V: K29, 10.11.1987; 1 adult female: K30, 10.11.1987; 1 stadium V, 1 adult female: K31, 10.11.1987; 2 stadium II, 2 females of stadium VII, 2 adult females: K10, 15.12.1987; 1 stadium II, 1 stadium III, 1 stadium IV, 2 females of stadium VI, 1 adult female: K11, 15.12.1987; 1 stadium III: K12, 15.12.1987; 2 stadium II, 2 stadium III, 2 adult males, 1 adult female: K13, 15.12.1987; 1 stadium I, 2 stadium V, 1 male of stadium VII, 1 female of stadium VII, 1adult male, 2 adult females: K14, 15.12.1987; 4 stadium II, 1 stadium IV, 1 female of stadium VI, 2 adult males: K15, 15.12.1987; 3 stadium II: K16, 15.12.1987; 1 stadium II, 1 stadium V, 1 male of stadium VII, 2 adult females: K17, 15.12.1987; 22 stadium I, 19 stadium II, 12 stadium III, 3 stadium V, 1 male of stadium VII, 1 female of stadium VII, 1 adult male: K18, 15.12.1987; 38 stadium I, 2 stadium II, 2 stadium III, 1 adult male: K19, 15.12.1987; 1 stadium I, 5 stadium II, 3 stadium III, 1 female of stadium VI, 1 adult female: K20, 15.12.1987; 1 stadium II, 1 stadium III: K21, 15.12.1987; 1 stadium I, 4 stadium II, 1 adult male: K26, 15.12.1987; 10 stadium II: K27, 15.12.1987; 1 male of stadium VII: K31, 15.12.1987; 1 stadium II: K32, 15.12.1987; 4 stadium II, 1 stadium III, 1 adult male, 1 adult female: K33, 15.12.1987; 13 stadium I, 21 stadium II, 15 stadium III, 4 stadium IV, 9 stadium V, 3 males of stadium VI, 5 females of stadium VI, 1 female of stadium VII, 2 adult females: K10, 13.01.1988; 3 stadium I, 2 stadium II, 7 stadium III, 4 stadium IV, 3 stadium V, 2 females of stadium VI, 1 adult female: K11, 13.01.1988; 13 stadium I, 1 stadium III, 8 stadium IV, 5 stadium V, 5 males of stadium VI, 2 females of stadium VI : K12, 13.01.1988; 3 stadium III, 5 stadium IV, 1 female of stadium VI: K13, 13.01.1988; 11 stadium III, 1 stadium IV, 4 stadium V, 1 male of stadium VI, 2 females of stadium VI, 1 female of stadium VII, 2 adult males, 2 adult females: K14, 13.01.1988; 1 stadium IV: K15, 13.01.1988; 1 stadium III, 1 stadium IV, 1 male of stadium VI, 4 females of stadium VI, 1 adult female: K16, 13.01.1988; 2 stadium IV, 2 females of stadium VI, 1 adult female:

K17, 13.01.1988; 2 stadium III, 2 stadium IV, 1 stadium V, 1 adult male: K18, 13.01.1988; 1 stadium IV: K19, 13.01.1988; 1 stadium I, 10 stadium II, 9 stadium III, 7 stadium IV, 2 males of stadium VI, 3 females of stadium VI, 1 male of stadium VII, 1 female of stadium VII, 1 adult female: K22, 13.01.1988; 7 stadium II, 1 stadium III, 1 stadium IV, 2 stadium V, 1 adult female: K23, 13.01.1988; 2 stadium II, 6 stadium III, 5 stadium IV: K24, 13.01.1988; 2 stadium II, 3 stadium III, 3 stadium IV, 1 stadium V, 1 male of stadium VI, 2 females of stadium, 2 adult females: K25, 13.01.1988; 1 stadium III: K26, 13.01.1988; 19 stadium I, 10 stadium II, 6 stadium III, 8 stadium IV, 2 females of stadium VI, 1 adult female: K30, 13.01.1988; 1 stadium I, 2 stadium II, 3 stadium III, 1 stadium IV, 1 stadium V, 2 adult males, 1 adult female: K31, 13.01.1988; 1 stadium I, 4 stadium II, 7 stadium III, 6 stadium IV, 1 adult female: K33, 13.01.1988; 1 stadium I, 1 stadium III, 1 stadium V, 1 female of stadium VII: E12, 14.01.1988; 1 female of stadium VI: E10, 01.02.1988; 1 stadium I, 4 stadium II, 1 stadium III, 1 stadium IV, 4 stadium V, 1 female of stadium VII: E11, 01.02.1988; 7 stadium I, 4 stadium II, 1 stadium III, 4 stadium IV, 1 male of stadium VI, 1 female of stadium VI: E12, 01.02.1988; 1 adult female: E13, 01.02.1988; 2 stadium II, 1 stadium V: E10, 12.02.1988; 1 stadium III: E12, 12.02.1988; 1 stadium V, 1 male of stadium VII: E13, 12.02.1988; 1 stadium IV, 3 stadium V, 2 males of stadium VII, 1 adult female: K10, 14.02.1988; 2 stadium II, 1 stadium III, 4 stadium IV, 1 female of stadium VI, 1 male of stadium VII: K11, 14.02.1988; 1 stadium II, 3 stadium III, 1 stadium IV: K12, 14.02.1988; 1 stadium V: K13, 14.02.1988; 5 stadium II, 2 stadium IV, 1 stadium V, 1 adult female: K14, 14.02.1988; 1 female of stadium VI: K16, 14.02.1988; 1 stadium I, 5 stadium III, 4 stadium IV, 7 stadium V, 2 females of stadium VI, 6 males of stadium VII, 1 female of stadium VII, 1 adult male, 2 adult females: K18, 14.02.1988; 5 stadium II, 3 stadium III, 2 stadium IV, 4 stadium V, 2 females of stadium VI, 2 adult females: K19, 14.02.1988; 2 stadium II, 2 stadium III, 1 stadium V, 1 male of stadium VI: K20, 14.02.1988; 3 stadium II, 3 stadium III, 1 stadium V, 7 females of stadium VI, 3 males of stadium VII, 1 adult male, 3 adult females: K22, 14.02.1988; 1 stadium II, 3 stadium III, 1 stadium IV, 1 male of stadium VI, 1 female of stadium VI: K23, 14.02.1988; 1 stadium III, 1 stadium IV, 1 male of stadium VI, 1 female of stadium VI, 1 female of stadium VII: K24, 14.02.1988; 3 stadium II, 2 stadium III, 4 stadium IV, 1 stadium V, 4 males of stadium VI, 4 females of stadium VI, 5 females of stadium VII, 5 adult females: K26, 14.02.1988; 2 stadium III, 1 stadium IV, 2 stadium V, 1 male of stadium VII: K27, 14.02.1988; 2 stadium II, 5 stadium III, 1 stadium IV, 1 female of stadium VI, 2 females of stadium VII: K28, 14.02.1988; 1 stadium V, 1 male of stadium VII: K29, 14.02.1988; 21 stadium I, 16 stadium II, 5 stadium III, 4 stadium IV, 2 stadium V, 5 females of stadium VI, 4 males of stadium VII, 3 females of stadium VII, 2 adult males, 2 adult females: K30, 14.02.1988; 1 stadium II, 3 stadium III, 1 stadium IV, 1 stadium V, 1 female of stadium VII: K31, 14.02.1988; 1 stadium V: K32, 14.02.1988; 1 adult male: E10, 01.02.1988; 1 stadium I, 1 stadium II, 2 stadium III, 1 stadium IV, 1 stadium V, 1 male of stadium VI, 3 females of stadium VI, 1 adult male, 3 adult females: E11, 01.02.1988; 1 stadium I, 1 stadium II, 1 stadium IV: E12, 01.02.1988; 10 stadium II, 4 stadium III, 4 stadium IV, 9 stadium V, 2 males of stadium VI, 7 females of stadium VI, 1 male of stadium VII, 1 female of stadium VII, 2 adult males, 2 adult females: K10, 14.03.1988; 2 females of stadium VII, 1 adult male: K11, 14.03.1988; 1 stadium III, 1 male of stadium VI: K12, 14.03.1988; 14 stadium I, 1 male of stadium VII: K13, 14.03.1988; 1 stadium II, 1 stadium III, 1 stadium IV, 6 stadium V, 2 males of stadium VI, 5 females of stadium VI, 5 females of stadium VII, 5 adult males, 5 adult females: K14, 14.03.1988; 1 stadium I, 2 stadium IV, 1 male of stadium VI, 1 female of stadium VI, 2 males of stadium VII: K15, 14.03.1988; 1 stadium I: K16, 14.03.1988; 1 female of stadium VII: K17, 14.03.1988; 14 stadium I, 2 stadium II, 2 stadium III, 1 stadium IV, 1 stadium V, 1 male of stadium VI, 1 female of stadium VI, 4 females of stadium VII: K18, 14.03.1988; 2 stadium II, 1 stadium IV, 1 stadium V, 1 male of stadium VII, 2 females of stadium VII: K19, 14.03.1988; 1 stadium V, 1 female of stadium VI: K20, 14.03.1988; 20 stadium I, 2 stadium II, 8 stadium III, 3 stadium IV, 2 stadium V, 4 males of stadium VI, 2 females of stadium VI, 6 males of stadium VII, 8 females of stadium VII, 10 adult males, 2 adult females: K22, 14.03.1988; 1 stadium II, 2 stadium III, 3 stadium V, 1 male of stadium VI, 4 females of stadium VI, 1 male of stadium VII, 4 adult males, 4 adult females: K23, 14.03.1988; 2 stadium II, 2 stadium III, 1 stadium IV, 3 stadium V, 2 females of stadium VI, 1 female of stadium VII: K24, 14.03.1988; 1 stadium II, 2 stadium III, 2 stadium V, 1 male of stadium VI, 1 female of stadium VI: K26, 14.03.1988; 1 stadium

IV, 1 female of stadium VI, 1 female of stadium VII: K27, 14.03.1988; 1 stadium I, 4 stadium II, 2 stadium III, 2 stadium IV, 2 stadium V, 1 male of stadium VII: K30, 14.03.1988; 1 stadium II, 2 stadium III, 1 stadium V, 2 males of stadium VI: K31, 14.03.1988; 1 stadium II, 1 stadium V: E10, 15.03.1988; 1 female of stadium VI: E11, 15.03.1988; 1 male of stadium VII: E13, 15.03.1988; 1 stadium I: E10, 30.03.1988; 1 stadium III: E11, 30.03.1988; 1 male of stadium VII: E12, 30.03.1988; 1 adult male: E13, 30.03.1988; 6 stadium I, 4 stadium II, 4 stadium III, 6 stadium IV, 6 stadium V, 2 males of stadium VI, 3 females of stadium VI, 10 males of stadium VII, 12 females of stadium VII: K10, 12.04.1988; 5 stadium II, 3 stadium III, 2 females of stadium VII: K11, 12.04.1988; 2 stadium V, 1 male of stadium VI: K12, 12.04.1988; 14 stadium II, 8 stadium III, 4 stadium IV, 8 stadium V, 2 males of stadium VI, 4 females of stadium VI, 1 male of stadium VII: K14, 12.04.1988; 2 stadium II, 4 stadium III, 2 stadium IV, 4 stadium V, 1 female of stadium VI, 1 female of stadium VII: K15, 12.04.1988; 1 stadium III, 1 stadium V: K16, 12.04.1988; 1 stadium III: K17, 12.04.1988; 2 stadium I, 1 stadium II, 8 stadium III, 9 stadium IV, 5 stadium V, 2 females of stadium VI, 3 males of stadium VII, 2 females of stadium VII: K18, 12.04.1988; 2 stadium III, 2 stadium IV, 1 stadium V, 1 male of stadium VI, 1 male of stadium VII, 2 adult males, 1 adult female: K19, 12.04.1988; 1 stadium III, 1 female of stadium VI: K20, 12.04.1988; 1 stadium III: K21, 12.04.1988; 1 stadium I, 2 stadium II, 1 stadium III, 6 stadium V, 1 male of stadium VI, 3 females of stadium VI, 3 males of stadium VII, 2 females of stadium VII: K22, 12.04.1988; 2 stadium II, 1 stadium III, 2 stadium IV, 3 stadium V, 2 males of stadium VI: K23, 12.04.1988; 2 stadium III, 1 adult male: K24, 12.04.1988; 2 stadium II, 1 stadium III, 1 male of stadium VI, 3 females of stadium VI, 1 female of stadium VII: K26, 12.04.1988; 5 stadium I, 1 stadium V, 1 male of stadium VI: K27, 12.04.1988; 18 stadium I, 4 stadium II, 4 stadium III, 4 stadium IV, 5 stadium V, 2 males of stadium VI, 2 females of stadium VI, 2 males of stadium VII, 2 females of stadium VII: K30, 12.04.1988; 1 male of stadium VII, 1 female of stadium VII: K31, 12.04.1988; 1 stadium IV: K32, 12.04.1988; 1 female of stadium VII: E11, 14.04.1988; 1 stadium IV: E12, 14.04.1988; 1 male of stadium VI: BE49A, 29.04.1988; 7 stadium I, 1 stadium II, 4 stadium III, 3 stadium IV, 3 stadium V, 2 males of stadium VII, 4 females of stadium VII: K10, 12.05.1988; 5 stadium I, 3 stadium IV, 1 stadium V, 2 males of stadium VI: K11, 12.05.1988; 1 stadium III: K12, 12.05.1988; 1 stadium I, 1 stadium II, 4 stadium IV, 2 females of stadium VI, 4 females of stadium VII, 2 adult males, 5 adult females: K14, 12.05.1988; 1 stadium III, 1 stadium IV, 2 stadium V, 1 male of stadium VI, 1 female of stadium VI, 1 adult female: K15, 12.05.1988; 1 adult female: K16, 12.05.1988; 1 adult female: K17, 12.05.1988; 1 stadium II, 2 stadium III, 3 stadium IV, 1 stadium V, 2 males of stadium VI, 1 female of stadium VII: K18, 12.05.1988; 1 stadium III, 1 stadium V, 1 female of stadium VI: K20, 12.05.1988; 3 stadium II, 3 stadium III, 5 stadium IV, 2 stadium V, 1 male of stadium VI, 3 females of stadium VI, 1 male of stadium VII: K26, 12.05.1988; 5 stadium IV, 2 adult females: K23, 12.05.1988; 1 stadium IV: K25, 12.05.1988; 1 stadium I, 1 stadium II, 3 stadium III, 3 stadium IV, 12 stadium V, 3 males of stadium VI, 2 females of stadium VI, 2 males of stadium VII, 1 female of stadium VII: K26, 12.05.1988; 2 stadium II, 2 stadium III, 4 stadium IV, 3 stadium V, 1 male of stadium VI, 3 females of stadium VI, 1 male of stadium VII, 3 females of stadium VII: K27, 12.05.1988; 1 stadium V, 2 males of stadium VII: K28, 12.05.1988; 1 stadium IV, 1 male of stadium VII, 1 adult female: K29, 12.05.1988; 1 stadium II, 3 stadium III, 5 stadium IV, 6 stadium V, 2 males of stadium VI, 4 females of stadium, 4 males of stadium VII, 2 females of stadium VII: K30, 12.05.1988; 4 stadium III, 3 stadium IV, 2 stadium V, 1 male of stadium VII, 2 females of stadium VII, 1 adult male: K31, 12.05.1988; 1 stadium IV, 1 male of stadium VI: K33, 12.05.1988; 2 males of stadium VII, 1 female of stadium VII: BE49A, 16.05.1988; 3 stadium V, 1 male of stadium VI, 1 female of stadium VI, 1 adult female: BE49B, 16.05.1988; 1 male of stadium VI: BE49D, 16.05.1988; 1 stadium V, 1 adult male, 1 adult female: E10, 16.05.1988; 1 stadium IV, 1 female of stadium VI, 1 adult female: E11, 16.05.1988; 1 stadium III, 1 stadium V: E12, 16.05.1988; 1 stadium I, 1 female of stadium VI, 1 female of stadium VII, 1 adult male, 1 adult female: BE49A, 31.05.1988; 1 male of stadium VII: BE49B, 31.05.1988; 2 males of stadium VI: BE49C, 31.05.1988; 1 male of stadium VII: BE49D, 31.05.1988.

Description. Adult male.

Measurements: Material examined 20 individuals. Body length 2.20-2.70 mm. Head width 490-560

μm. Second tarsal length of 13th leg 160-168 μm.

Head. Anophthalmia.

Antenna 8-segmented (Fig. 7). Antennal segment VI with three thick bacilliform sensilla (anterior *a*, intermediate *i*, and posterior *p*), one coelo-conical sensillum (*c*) behind *p* and no setiform sensillum (*s*). Sensillum *a* shorter than *i* and *p*. Segment VII with two thick bacilliform sensilla of *a* and *p*, a small *s* between *a* and *p*, and *c* behind *p*. Both sensilla *s* and *c* lying at midlength off *a* and *p* (Figs. 8 and 9).

Three trichobothria arranged in a triangle; two posterior ones with cylindrical funiculi and anterior one degenerated to a short dilated funiculus (Figs. 10 and 11). Placentae of trichobothria of same size.

Nippleless palpi of gnathochilarium with 78 bacilliform sensilla (Figs. 2 and 3).

Labrum covered with indistinct large granules on surface and armed with monolamellar teeth at anterior margin; medial portion deeply indented, posterior portion with a line of minute setae (Fig. 1). Clypeo-labrum with 6+6 setae.

Comb-lobe of mandible with a row of 17 branched comb teeth separated in five or six lobes and with seven rows of simple comb teeth. Intermediate lobe of intermediate plate without sensilla. Fimbriate lamellae incised into a few processes. Molar plate consisting of 19 serrate limbs and one smooth limb, a narrow granulated zone between serrate limbs, two small salivary ostioles, nine molar combs with regularly arranged teeth, nine broad molar processes and a swollen molar plate shoulder with rather a small number of coarse granules restricted to invaginated portion, which are situated in front of first serrate limb (Figs. 5 and 6). Molar tuft absent.

Trichomes with numerous acute spines (Fig. 17).

Posterior vertical tufts consisting of 18 to 23 trichomes; 14 to 17 trichomes in anterior row (ar) and 4 or 5 trichomes in posterior row (pr) (Fig. 12).

Trunk. Eleven-segmented. Collum with one pair of tufts consisting of 43 and 44 trichomes in holotype and 44 to 47 in paratypes (Fig. 13). Lateral protuberance of collum with 5 and 6 trichomes in holotype and 7 and 8 in paratypes. Tergite II with one pair of tufts consisting of 26 and 27 trichomes in holotype and 26 to 30 in paratypes, paired tufts of each tergite connected with 32 straight trichomes arranged in a line along posterior margin and subdivided in the middle (Fig. 14).

Legs. 13 pairs. Each leg article except for tibia and first tarsus (cf. BROLEMANN 1935: 61) bearing pubescent oval setae (Fig. 18). Femoral seta very small compared with those on other leg articles. Chaetotaxy as follows: coxae I to III with three setae; IV to XIII usually with three or four, rarely four or five, setae; trochanters I to V usually with two, rarely two or three, setae; VI to XIII with one seta; prefemora I to XII usually with two, rarely two or three, setae; XIII with one seta; femora I to IX with one seta, but X to XIII rarely with one seta. Second tarsus anterolaterally with a spine subequal in length to telotarsus (Figs. 19 and 21). A simple telotarsus with a ventral process; each pair of denticles situated dorsoventrally (Fig. 20). Sexual organ with short penes (Fig. 15). Glandular invaginations absent.

Telson. Bundle of caudal penicil unseparated. Dorso-ornamental trichomes of caudal penicil consisting of trichomes $c^{1\text{-}3}$ and 7 or 8 trichomes *a*: Trichome *a* separated into two trichome-groups of 5 or 6 internal trichomes (i) and two external one (e) (Fig. 22). Telsonic trichomes with four fish hook-like barbed hooks (Fig. 16).

Adult female.

Measurements: Material examined 20 individuals. Body length 2.42-2.80 mm. Head width 450-480 μm. Second tarsal length of 13th leg 130-160 μm.

Head. Nippleless palpi of gnathochilarium with 17-19 bacilliform sensilla (Fig. 4).
Comb-lobe of mandible with a row of 12 branched comb teeth separated into four or five lobes. Posterior vertical tufts consisting of 13 to 20 (10 to 16 ar + 3 or 4pr) trichomes.

Trunk. Collum with one pair of tufts composed of 35 to 38 trichomes. Tergite II with one pair of tufts consisting of 15 or 16 trichomes, paired tufts of each tergite connected by 25 straight trichomes arranged in a line along posterior margin.

Legs. 13 pairs. Each leg article except for femur, tibia and first tarsus bearing pubescent oval setae. Chaetotaxy as follows: coxa I with one seta; II to X with three setae; XI to XIII with two, rarely two or

three, setae; trochanter I with two setae; II with three setae; III to XIII with one seta; prefemora I and II with one or two setae; III and IV with two setae; V to XIII with one seta.

Telson. Number of trichome *a* of dorso-ornamental trichome of caudal penicil; 5 (4i+1e), 6 (5i+2e) and 8 (6i+2e).

Remarks: This new species resembles *Lophoturus okinawai* NGUYEN DUY-JACQUEMIN & CONDÉ, 1982. ISHII (1988) pointed out that the mandible is a useful diagnostic character in the taxonomy of penicillate diplopods. ISHII (1990) also described exactly the mandible of *L. okinawai* collected from Taiwan. The general features of the mandible in this new species are similar to those of *L. okinawai*. However, the molar plate in *L. adisi* n.sp. has a swollen dorsal molar plate shoulder (Figs. 23 and 24) with a rather small number of coarse granules restricted to the invaginated portion, while *L. okinawai* has a flat dorsal molar plate shoulder subdivided into two lobes by a distinct suture, of which the posterior lobe is covered almost entirely with a large number of smaller granules (Figs. 25 and 26). Consequently, the difference in molar plate structure is enough to separate the present species from *L. okinawai*.

In general, secondary sexual characters in Penicillata are known to become distinct starting from larval stadium VI. In this study, the total number of stadia VI, VII and adults of *L. adisi* n.sp. collected was 511, among which the numbers of males and females in each stadium were as follows, respectively: 68 and 94 for stadium VI, 102 and 73 for VII, 86 and 88 for adult. Consequently, the sex ratio was 1:1 as based on the total number of the stadia combined.

Name: The present species is gladly dedicated to Dr. Joachim ADIS, who kindly delivered to us his valuable material for study.

Stadium VII (with 12 pairs of legs).

Measurements. Male: Material examined 10 individuals. Body length 2.60 mm, head width 448 μm, second tarsal length of 12th leg 156 μm. Female: Material examined 10 individuals. Body length 2.30-2.86 mm, head width 404-440 μm, second tarsal length of 12th leg 148-160 μm.

Head. Nippleless palpi of gnathochilarium with 48 and 52 bacilliform sensilla in male and with 18 bacilliform sensilla in female (Figs. 29 and 30). Clypeo-labrum with 5+5 and 5+1+5 setae in both sexes (Fig. 27). Comb-lobe of mandible with a row of 15 branched comb teeth. Molar plate with 18 serrate limbs and eight broad molar processes (Fig. 28). Number of trichomes of posterior vertical tufts: 18 to 20 (14 or 15 ar+4 or 5 pr) in male, 16 to 18 (13 or 14 ar+3 or 4 pr) in female.

Trunk. 10-segmented. Collum with one pair of tufts consisting of 39 to 41 trichomes in male and 32 to 35 trichomes in female. Lateral protuberance of collum with 6 or 7 trichomes in male and five trichomes in female. Number of trichomes of anterior row in posterior vertical tufts: male; 14 or 15, female; 13 or 14.

Legs. Chaetotaxy as follows: coxa I with 2 or 3 setae, II to IV with 3 or 4 setae; V to VIII with 2 or 3 setae, IX and X with one or two setae, XI and XII without setae; trochanters I to V with one or two setae, VI to XII with one seta; prefemora I to IV with two setae, V to VIII with one or two setae, IX to XII with one seta; femora I and II with one small seta, but III to XII without setae.

Telson. Number of dorso-ornamental trichomes *a* of caudal penicil: male, 8 (6i+2e); female, 11 (8i+3e).

Stadium VI (with 10 pairs of legs).

Measurements: Male: Material examined 10 individuals. Body length 1.80-1.90 mm, head width 388-448 μm, second tarsal length of 10th leg 132-152 μm. Female: Material examined 10 individuals. Body length 1.70-2.10 mm, head width 456 μm, second tarsal length of 10th leg 152 μm.

Head. Nippleless palpi of gnathochilarium with 26 bacilliform sensilla in male (Fig. 31). Clypeo--labrum with 4+1+4 setae in both sexes (Fig. 32). Comb-lobe of mandible with a row of 14 or 15 branched comb teeth. Molar plate with 16 or 17 serrate limbs. Number of trichomes in posterior vertical tufts: 15 to 17 (12 or 13 ar+3 or 4 pr) in male, 14 or 15 (11 ar+3 or 4 pr) in female.

Trunk. Nine-segmented. Collum with one pair of tufts consisting of 25 to 27 trichomes in male and 32 to 34 in female. Lateral protuberance of collum with 4 or 5 trichomes in both sexes.

Legs. Chaetotaxy as follows: coxa I with 1 to 3 setae, II with 3 setae, III to V with 2 or 3 setae; VI to VIII with 1 or 2 setae, IX and X without setae; trochanters I to IV with one or two setae, V to X with one seta; prefemora I to V with two setae, VI to X with one setae; femur I with one small seta, II to X without setae.

Telson. Female with 10 (7i+3e, 8i+2e) dorso-ornamental trichomes *a* of caudal penicil.

Stadium V (with 8 pairs of legs).

Measurements: Material examined 10 individuals. Body length 1.50-2.00 mm, head width 344-396 µm, second tarsal length of 8th leg 128-132 µm.

Head. Nippleless palpi of gnathochilarium with 18 bacilliform sensilla. Clypeolabrum with 4+4 or 4+1+4 setae in both sexes. Comb-lobe of mandible with a row of 13 branched comb teeth. Molar plate with 15 serrate limbs and eight molar combs. Posterior vertical tufts consisting of 14 or 15 (11 or 12 ar+3 pr) trichomes.

Trunk. 8-segmented. Collum with one pair of tufts consisting of 23 to 26 trichomes. Lateral protuberance of collum with 4 trichomes.

Legs. Chaetotaxy as follows: coxa I with two setae, II to IV with 2 to 3 setae, V with 2 setae, VI with one or 2 setae, VII and VIII without setae; trochanter I with one seta, II and III with one or 2 setae, IV to VIII with one seta; prefemora I to III with 1 or 2 setae, IV to VIII with one seta; femur I with one small seta but II to VIII without setae.

Telson. 7 (5i+2e), 8 (6i+2e) or 9 (7i+2e) dorso-ornamental trichomes *a* of caudal penicil.

Stadium IV (with 6 pairs of legs).

Measurements: Material examined 10 individuals. Body length 1.50-1.60 mm, head width 360-384 µm, second tarsal length of 6th leg 120-124 µm.

Head. Antenna 8-segmented (Fig. 34). Antennal segment V with three thick bacilliform sensilla of *a*, *i* and *p*, *c* behind *p* and *s*; segment VI with two thick bacilliform sensilla of *a* and *p*, a small *s* between *a* and *p*, and *c* behind *p*. Clypeo-labrum with 4+4 setae (Fig. 33). Comb-lobe of mandible with a row of 12 branched comb teeth. Molar plate with 14 serrate limbs and seven molar combs (Fig. 35). Posterior vertical tufts consisting of 11 (9 ar+2 pr) trichomes.

Trunk. 7-segmented. Collum with one pair of tufts consisting of 20 trichomes. Lateral protuberance of collum with three trichomes.

Legs. Chaetotaxy as follows: coxa I with 2 setae, II and III with 2 or 3 setae, IV with two setae; V with one seta, VI without setae; trochanters and prefemora I to III with 1 or 2 setae, IV to VI without setae; femur I with one small seta.

Telson. 7 (5i+2e), 8 (6i+2e) dorso-ornamental trichomes *a* of caudal penicil.

Stadium III (with 5 pairs of legs).

Measurements: Material examined 10 individuals. Body length 1.10-1.30 mm, head width 320-336 µm, second tarsal length of 5th leg 108-118 µm.

Head. Comb-lobe of mandible with a row of nine branched comb teeth and six row of comb teeth. Molar plate with 12 serrate limbs. Posterior vertical tufts consisting of 9 or 10 (7 or 8 ar+2 pr) trichomes.

Trunk. 6-segmented. Collum with one pair of tufts consisting of 17 and 18 trichomes.

Legs. Chaetotaxy as follows: coxae I and II with 1 or 2 setae, III with two setae, IV with one seta; V without setae; trochanters I to V with one seta; prefemora I to III with 1 or 2 setae, IV and V with one seta.

Telson. 7 (5i+2e) dorso-ornamental trichomes *a* of caudal penicil.

Stadium II (with 4 pairs of legs).

Measurements: Material examined 10 individuals.
Body length 0.80-1.10 mm, head width 284 µm, second tarsal length of 4th leg 92-104 µm.

Head. Antenna 5-segmented (Fig. 39). Antennal segment III with three thick bacilliform sensilla of *a*, *i* and *p*, *c* behind *p* and *s*; segment IV with two thick bacilliform sensilla of *a* and *p*, a small *s* between *a* and *p*, and *c* behind *p*. Comb-lobe of mandible with a row of six branched comb teeth separated in three and four lobes. Molar plate with six molar combs and seven molar processes (Fig. 36). Middle part of labrum bearing thin tiny cuticular setae arranged in two line (Fig. 37). Posterior vertical tufts consisting of eight (7 ar+1 pr) trichomes.

Trunk. 5-segmented. Collum with one pair of tufts consisting of 12 or 13 trichomes.
Lateral protuberance of collum with two trichomes.

Legs. Chaetotaxy as follows: coxae I to III with one seta, IV without setae; trochanters and prefemora I to IV with one seta.

Telson. 4 (3i+1e) or 5 (4i+1e) dorso-ornamental trichomes *a* of caudal penicil.

Stadium I (with 3 pairs of legs).

Measurements: Material examined 10 individuals. Body length 0.70-0.80 mm, head width 224-256 µm, second tarsal length of 3rd leg 92-96 µm.

Head. Antennal segment III with two thick bacilliform sensilla *i* and *p*, *c* behind *p*, and *s* anterolateral of *i* (Fig. 41). Comb-lobe of mandible with a row of five branched comb teeth and five rows of simple comb teeth. Molar plate with five molar combs, a molar plate shoulder and nine serrate limbs (Figs. 42 and 43). Mid-posterior part of labrum clothed with tiny cuticular setae (Fig. 40). Three trichobothria consisting of a flame-shaped anterior trichobothrium and two setiform posterior ones without cylindrical funiculi (Figs. 44 and 45). Posterior vertical tufts consisting of six (5 ar+1 pr) trichomes.

Trunk. 5-segmented. Collum with one pair of tufts consisting of eight trichomes. Lateral protuberance of collum with one trichome.

Legs. Chaetotaxy as follows: coxae I and II with one seta, III without setae; trochanters and prefemora I to III with one seta.

Telson. 4 (3i+1e) dorso-ornamental trichomes *a* of caudal penicil (Fig. 46).

Genus *Ancistroxenus* SCHUBART, 1947

The monotypic genus *Ancistroxenus* SCHUBART, 1947 (the type species: *A. tupiensis* SCHUBART, 1947) was only described succinctly (cf. SCHUBART 1947). SILVESTRI (1950) was therefore unable to include it in his key to the genera of Penicillata. The single useful yet insufficient character mentioned was the elongated antennal segment VI, as depicted in the original description (SCHUBART 1947: Fig. 40). However, no sensilla of segment VI were not figured. Based on the elongation and sensilla of this segment, CONDÉ (1964) created the new genus *Plesioproctus* for *Lophoturus comans* LOOMIS 1934, from Trinidad.

We have recently re-examined several syntypes of *Ancistroxenus tupiensis* SCHUBART, 1947, among which we have selected a lectotype female. This, together with two paralectotype females and one female with 12 pairs of legs, are redescribed below. We have conclusively found that the genus *Plesioproctus* CONDÉ, 1964 is a junior synonym of *Ancistroxenus* SCHUBART, 1947 (n. syn.). Thus, *Plesioproctus comans* becomes *Ancistroxenus comans* n. comb. In addition, *A. tupiensis* appears to represent but a subjective junior synonym of *A. comans*, n. syn. (see below).

Ancistroxenus comans (LOOMIS, 1934), n.comb.

Ancistroxenus tupiensis SCHUBART, 1947, n.syn.

Material examined.

1 adult female (without antennae) (INPA), 1 larva stadium VI (INPA), 1 stadium IV (INPA), 1 stadium III (MHNP), 4 stadium II (each 2 individuals for INPA and MHNP), Brazil. Amazonas, environs of Manaus, Reserva Florestal A. Ducke (2°55'S, 59°59'W), terra firme: K10. RD8, 12.04.1983; 1 female with 12 pairs of legs (MHNP), 1 stadium V (INPA): K28. RD2, 13.10.1982; 1 stadium VI (INPA): K18. RD6, 12.02.1983; 3 stadium V (1 ind. for INPA and 2 ind. for MHNP), 1 stadium IV (MHNP), 2 stadium III (INPA): K14. RD8, 12.04.1983; 5 stadium II (INPA): K14. RD6, 12.02.1983, all J. ADIS et al. leg.

Description. Adult female.

Measurements: Body length (without caudal penicil) 5.10 mm, second tarsal length of 13th leg 262 µm.

Head. Posterior part of vertex with one pair of tufts arranged in two rows: anterior row slightly shorter than distance between rows and consisting of 15 trichomes, posterior row with four trichomes. Palpi of gnathochilarium with 22 and 23 sensilla. Trichobothria similar to those of the holotype as redescribed by CONDÉ (1964). Labrum with four posterior rows of cuticular setae (2 to 3 in the holotype). Clypeo-labrum with 6+6 setae (Fig. 52).

Trunk. Trichomes of each tergite grouped in two separate oval clusters with an additional posterior row subdivided in its middle, except on collum; distance between both clusters much greater than length of each cluster. Collum with left tuft of 44 and right tuft of 47 trichomes; lateral protuberance of collum with six trichomes. Each oval cluster on tergites II to IX with 20 to 24 trichomes and posterior row with 25 to 35.

Legs. Coxae I to XIII bearing 3 to 6 setae, trochanters with one seta, prefemora with 2 to 4 setae; femura with one seta, except for first and fifth left legs and second and fourth right legs bearing two setae each. Spine of tarsus II longer than telotarsus. Telotarsus without ventral process. Claw without ventral denticle.

Telson. Nine trichomes *a* of which six (6i) placed on internal side and three (3e) on external side in a group of trichomes *b*, c^1 and c^3. Two types of trichome of caudal penicil, one with about four hooks and the others with 7 to 10 smaller hooks arranged in a line.

Female with 12 pairs of legs (stadium VII).

Measurements: Body length (without caudal penicil) 4.30 mm, second tarsal length of 12th leg 220 µm.

Head. On vertex, each anterior row composed of 11, and each posterior row of two, trichomes. Antennal segment VI more than twice as long as broad (Fig. 51); 18 and 16 bacilliform sensilla on left and right segment VI, respectively, among which two thick bacilliform sensilla *i* and *p* situated one behind the other (Fig. 49). Segment VII with one thin anterior bacilliform sensillum, one thick posterior bacilliform sensillum, and one posterior coelo-conic sensillum (Fig. 50). Labrum with four posterior rows of cuticular setae. Clypeo-labrum with nine setae. Each palpus of gnathochilarium with 20 sensilla.

Trunk. Collum with left tuft of 33, and right tuft of 30, trichomes; lateral protuberance of collum with six trichomes. Each oval cluster of tergites II to IX with 20 to 24 trichomes; posterior row of tergites II to VIII composed of 15 to 27 trichomes, distance between both clusters much greater than length of each cluster proper.

Legs. Coxae I to XII bearing 1 to 4 setae, trochanters with one seta, prefemora with 2 to 4 setae; femora with one seta each.

Telson. 14 trichomes *a*: nine internal and five external to group of trichomes *b*, c^1 and c^3.

Two females with 10 pairs of legs (stadium VI).

Measurements: Body length (without caudal penicil) 2.90 or 3.20 mm, second tarsal length of 10th leg 179 or 189 µm.

Head. Posterior tufts of vertex consisting of 9 or 10 trichomes in anterior row and of two posterior trichomes. Antennal segment VI more than twice as long as broad; 14 to 17 bacilliform sensilla on segment VI. Labrum with four posterior rows of cuticular setae. Clypeo-labrum with nine setae. Gnathochilarium with 18+18 sensilla.

Trunk. Collum with a tuft of 23 to 29 trichomes; lateral protuberance of collum with 5 to 6 trichomes. Each oval cluster of tergites II to VIII with 11 to 16 trichomes; posterior row of tergites II to VII composed of 14 to 23 trichomes, distance between both clusters much greater than length of each cluster.

Legs. Coxae I to VIII bearing 2 to 4 setae, IX and X without setae; trochanters I to X with one seta; prefemora I to VIII with 2 to 3 setae, rarely four, IX and X with one seta; femora I to VIII with one seta, IX and X without setae. Claw of telotarsus without ventral denticle.

Telson. Nine (5i+4e or 6i+3e) to 10 (6i+4e) trichomes *a*.

Four larvae with 8 pairs of legs (stadium V).

Measurements: Body length (without caudal penicil) 2.30 to 2.70 mm, second tarsal length of 8th leg 158 to 164 µm.

Head. On vertex, each anterior row composed of eight or ten trichomes, and each posterior row of 2 or 3 (one larva) trichomes. Antennal segment VI more than twice as long as broad; 15 bacilliform sensilla on segment VI of each left antenna (Fig. 47) in two juveniles (right antenna missing); 12 bacilliform sensilla on each regenerated antenna of another juvenile; fourth larva without antennae. Labrum with four or five posterior rows of cuticular setae. Clypeo-labrum with 9 or 10 setae. Gnathochilarium with 17+17, 18+18, 20+20 or 21+21 sensilla.

Trunk. Collum with a tuft of 20 to 24 trichomes; lateral protuberance of collum with three trichomes. Each oval cluster of tergites II to VII with 10 to 16 trichomes; posterior row of tergites II to V composed of 14 to 21 trichomes.

Legs. Coxae I to V bearing 2 to 3 setae, VII and VIII without setae; trochanters I to VIII with one seta; prefemora I to VIII with 1 to 3 setae; femora I to V with one seta, VI with one seta in one case, and VII and VIII without setae.

Telson. 7 to 11 trichomes *a* (4i+3e, 5i+2e, 5i+4e, 5i+5e, 6i+4e and 7i+4e).

Two larvae with 6 pairs of legs (stadium IV).

Measurements: Body length (without caudal penicil) 2.10 mm, second tarsal length of 6th leg 140 and 145 µm.

Head. On vertex, anterior row composed of 7 or 8, and posterior row of 2 or 1 (in one case), trichomes. Antennal segment V twice as long as broad; 10 to 13 bacilliform sensilla on segment V. In a larva preparing for molting, two additional, new sensilla visible under cuticle of left antennal segment V (12 new sensilla instead of 10). Labrum with four or five posterior rows of cuticular setae. Clypeo-labrum with nine setae. Gnathochilarium with 18+18 sensilla.

Trunk. Collum with a tuft of 20 to 28 trichomes; lateral protuberance of collum with two trichomes. Each oval cluster of tergites II to VI with 8 to 11 trichomes, posterior row of tergites II to IV composed of 13 to 16 trichomes, V and VI of 4 to 8 trichomes.

Legs. Coxae I to V bearing 1 or 2 (3 in one case) setae, VI without setae; trochanters I to VI with one seta; prefemora I to VI with 1 or 2 setae; femora I to V without setae, except for a single seta in one case.

Telson. 7 or 8 trichomes *a* (4i+3e, 4i+4e, 5i+2e and 5i+3e).

Six larvae with 5 pairs of legs (stadium III).

Measurements: Body length (without caudal penicil) 1.40 to 1.70 mm, second tarsal length of 5th leg 120 and 133 µm.

Head. Posterior tufts of vertex consisting of 6 or 7 trichomes in anterior row and one posterior trichome. Antennal segment III more than twice as long as broad; 8 to 10 bacilliform sensilla on segment III. Labrum with five posterior rows of cuticular setae. Clypeo-labrum with 8 to 9 setae. Gnathochilarium with 18+18 sensilla.

Trunk. Collum with a tuft of 14 or 15 trichomes; lateral protuberance of collum with two trichomes. Each oval cluster of tergites II to VI with 7 to 10 trichomes, posterior row of tergites II to IV composed of 8 to 14 trichomes, V of 4 trichomes.

Legs. Coxae I to IV bearing 1 or 2 setae, V without setae; trochanters I to V with one seta; prefemora I to V with 1 or 2 setae; femora I to V without setae, except for one seta in two cases.

Telson. 5 to 7 trichomes *a* (3i+2e, 3i+3e, 4i+2e, 4i+3e and 5i+2e).

Four larvae with 4 pairs of legs (stadium II).

Measurements: Body length (without caudal penicil) 1.10 to 1.30 mm, second tarsal length of 4th leg 118 and 126 µm.

Head. Posterior tufts of vertex consisting of six trichomes in anterior row and one posterior trichome. Antennal segment III twice as long as broad; 8 to 10 bacilliform sensilla on segment III (Fig. 48). Labrum with five posterior rows of cuticular setae. Clypeo-labrum with 8 to 9 setae. Gnathochilarium with 18+18 sensilla.

Trunk. Collum with a tuft of 10 or 12 trichomes; lateral protuberance of collum with two trichomes. Each oval cluster of tergites II and IV with 5 to 7 trichomes, posterior row of tergites II and III composed of 6 to 8 trichomes, IV of 3 to 4 trichomes.

Legs. One seta on coxa, trochanter and prefemur, except on subcoxae of leg IV.

Telson. 5 to 7 trichomes *a* (3i+2e, 3i+3e, 4i+2e and 4i+3e).

Redescription of *Ancistroxenus tupiensis* SCHUBART, 1947

Material re-examined.

Three tubes (ref. MZUSP 830) containing the syntypes of *Ancistroxenus tupiensis* SCHUBART, 1947 and labelled "*Hypogexenus tupiensis* SCHUBART, Aurá, Estado do Pará, col. A. L. de Cavalho, IV 1940, det. O. SCHUBART, IV 42", were loaned from the Museu de Zoologia, Universidade de São Paulo. The following type designations have been made: the lectotype female in tube 1; a paralectotype female in tube 2; a paralectotype female in tube 3 (among 6 adult females, paralectotypes and 1 female paralectotype with 12 pairs of legs).

Description. Adult females.

Measurements: Body length (without caudal penicil) 4.30 to 4.40 mm, caudal penicil about 1 mm long, second tarsal length of 13th leg: lectotype = 265 µm, female No. 2 = 300 µm, and female No. 3 = 240 µm.

Head. Vertex with one pair of posterior tufts arranged in two rows: anterior row equal to or slightly longer than distance between the tufts and consisting of 15 to 18 trichomes, posterior row with 3 to 5 trichomes. Antennal segment VI three times longer than broad (Figs. 54 and 56); 19 bacilliform sensilla on left segment VI and 25 on right segment in female No. 3 (Fig. 56); one coelo-conic sensillum on right segment VI of female lectotype (Fig. 54); coelo-conic sensillum absent from antennal segment VI of female No. 3, on two regenerated antennae of female No. 2, and on left regenerated antenna of female lectotype. Segment VII with one thick posterior bacilliform sensillum, one thin anterior bacilliform sensillum and one posterior coelo-conic sensillum (Fig. 55); each segment VII of No. 3 regenerated antennae with two coelo-conic sensilla. Palpi of gnathochilarium of lectotype with 24 and 25 sensilla. Trichobothria (Fig. 53) similar to those of holotype of *Ancistroxenus comans*, as redescribed by CONDÉ (1964). Labrum with two posterior rows of cuticular setae, second row interrupted by a space (Fig. 58), pavement-like ornamentation similar to that of holotype of *Ancistroxenus comans*. Clypeo-labrum with 6+6

setae.

Trunk. Trichomes of each tergite grouped into two separate oval clusters with an additional, divided posterior row, except on collum; distance between clusters much greater than length of each cluster. Collum of female lectotype with a left tuft of about 70 trichomes; left lateral protuberance of collum with nine trichomes, right with eight; each oval cluster of tergites II to IX with 21 to 32 trichomes and posterior row with 34 to 38. In female No. 3, number of trichomes on tergites fewer: 15 to 23 in lateral clusters of tergites II to IX.

Legs. Coxae I to XIII bearing 2 to 5 setae in lectotype and 3 to 5 in female No. 2; trochanters with one seta, prefemora with 1 to 3 setae in lectotype and 3 to 4 setae in female No. 2; femora with one seta. Spine of tarsus II longer than telotarsus (Fig. 57). Telotarsus without ventral process. Claw without ventral denticle. Preanal sternite with 3+3 setae, being similar to those of legs in lectotype.

Telson. 9 to 10 trichomes *a*, of which 6 to 8 are placed on internal side and 2 to 3 on external side of group of trichomes *b*, c^1 and c^3. Caudal trichomes with final hooks of two types: one with about four hooks and the other with about seven smaller hooks (SCHUBART 1947: Fig. 41).

Discussion and Synonymy

The Brazilian specimens of *Ancistroxenus comans* do not correspond exactly to the redescription (CONDÉ 1964) of the holotype collected in Trinidad (Maracas Valley), but the small variations observed fall within those found in other populations of *A. comans* from Jamaica (TERVER & CONDÉ 1965), Costa Rica, Colombia and Venezuela (TERVER et al. 1968). In comparison with the holotype, the difference are as follows: (a) the antennae are shorter than in the holotype, the length to width ratio of antennal segment VI in the female with 12 pairs of legs being about 2.25 (3 in the holotype), similar to the female of the same stadium from Jamaica (2.2); (b) the external structure of the labrum is slightly different: there are four rows of cuticular setae along the latero-posterior border, instead of 2-3 rows in the holotype (1 row in specimens from Venezuela and Colombia); the pavement-like ornamentation is also reduced, as in the adult female from Colombia (see TERVER et al. 1968: Fig. 4B, p. 196). The juveniles described from Amazonia are similar to those from Jamaica (Mona, St Andrew Parish) (TERVER & CONDÉ, 1965); on antennal segment VI or its equivalent in juveniles, the two thick bacilliform sensilla - intermediate (*i*) and posterior (*p*) - are always situated behind each the other; the thin bacilliform sensillum (A) is anterior and often slightly more proximal than *i* (see holotype: Fig. 1B, C). The previously unknown larval stadium V is described here for the first time.

Ancistroxenus tupiensis is very similar to the holotype of *A. comans*: its antennae are long; the length to width ratio of antennal segment VI is the same (3), the external structure of the labrum is the same, etc. Bacilliform sensillum *p* and *i* are evident; A is not evident, but its position seems variable in this genus and is not a reliable character for identification. *A. tupiensis* falls within the range of variation of *A. comans* and is a synonym of *comans*.

Both *Lophoturus adisi* n.sp. and *Ancistroxenus comans* belong to the family Lophoproctidae, hence, considering the above new generic synonymy, a key to the known lophoproctids seems warranted (see below).

Only *L. adisi* n.sp. has been collected in an inundation woodland, while *A. comans* has only been found on the floor of a non-inundated forest.

Key to the genera of the family Lophoproctidae

1. - Linguiform processes along entire anterior edge of labrum 2
-. - 0 to 4 pairs of linguiform processes on each side of median opening of labrum 3
2. - Antennal segment VI with 4 thick sensilla ..... *Lophoproctus* POCOCK, 1894
-. - Antennal segment VI with 3 thick sensilla ..... *Lophoproctinus* SILVESTRI, 1948
3. - Antennal segment VI with 3 thick sensilla ..... *Lophoturus* BROLEMANN, 1931
-. - Antennal segment VI with 2 thick sensilla and 3 to 29 thin sensilla 4
4. - Antennal segment VI with 3 to 10 thin sensilla (in adult) .....
..... *Alloproctoides* MARQUET & CONDÉ, 1950
-. - Antennal segment VI with 24 to 29 thin sensilla (in adults) .....
..... *Ancistroxenus* SCHUBART, 1947

Macroxenodes amazonicus n.sp.

Types.

Holotype: Adult female (INPA), Brazil, Amazonas, Rio Solimões, Ilha de Marchantaria (59°58'W, 3°15'S), várzea, BE47C/MA, 22.01.1982, J. ADIS et al. leg. Paratypes: 1 adult female (INPA), as same locality as for holotype, BE47B/MA, 20.03.1991, J. ADIS et al. leg.; 1 adult female (USP), Brazil, Amazonas, environs of Manaus, Lago Janauarí (03°20'S, 60°17'W), mixedwater inundation forest, K26, 12. 04. 1988, J. ADIS et al. leg.

Other matrial examined.

1 adult male (CI), as same locality as for holotype, BE49A, 30.09.1987, J. ADIS et al. leg. (for SEM); 1 adult female (CI), Brazil, Amazonas, Rio Taruma Mirím, Igapó, (03°02'S, 60°17'W), blackwater inundation forest, 47B/TM, 8.12.1976, J. ADIS et al. leg. (for SEM).

Description.

Measurements: Body length (without caudal penicil), 3.90 (holotype) to 4.40 mm. Head width 0.62 mm. Second tarsal length of 13th leg 0.16 to 0.19 mm.

Head. Eight ocelli on each side (Fig. 63).

Antenna 8-segmented (Figs. 64 and 89). Antennal segment VI with two groups of dorsal and postero--ventral sensilla: sensilla of dorsal group composed of three thick bacilliform sensilla (anterior *a*, intermediate *i*, and posterior *p*), one coelo-conic sensillum (*c*) before *p*, and one setiform sensillum (*s*) with some spines between *a* and *i*; postero-ventral group composed of 4 to 7 short, thick bacilliform sensilla and one *s* with three spines (Figs. 66, 67 and 87). Segment VII dorsally with two thick bacilliform sensilla *a* and *p*, one *s* between *a* and *p*, and one *c* behind *p*, and no ventral sensilla (Figs. 65 and 88).

Three trichobothria with cylindrical funiculi arranged in a triangle (Fig. 68). Placentae of trichobothria of same size.

Outer palpus of gnathochilarium with 21 to 23 bacilliform sensilla segmented at apex, while middle palpus with 20 to 22 sensilla composed of long, segmented sensilla and short, non-segmented sensilla (Figs. 70 and 71).

Labrum clothed with numerous small cuticular setae on surface and granules arranged anteriorly in two rows, and armed with 5+1+5 lamellar teeth at anterior margin (Fig. 69). Clypeo-labrum with 9 to 11 setae along posterior margin.

Comb-lobe of mandible with a row of 11 branched comb teeth separated in five and six lobes, and with eight rows of simple comb teeth (Fig. 72). Intermediate plate with an intermediate lobe, some thick intermediate sensilla and fimbriate lamellae arranged in four distinct longitudinal rows deeply incised into long pointed processes. Molar plate consisting of nine broad serrate limbs and two broad smooth limbs, a

wide granulated zone, 14 salivary ostioles arranged in two rows, eight broad molar processes, six submolar processes and a molar plate shoulder with a process, latter situated in front of first serrate limbs (Figs. 73, 74 and 76). Molar tuft absent.

Posterior part of vertex with one pair of tufts of trichomes, arranged in two rows, anterior row with 12 or 17 trichomes and posterior row with 6 to 9 (Fig. 59). Each row is slightly more than twice as long as distance between rows.

Trunk. Tergites with paired trichomic tufts. Except on tergites IX to XI, each tuft consisting of three trichomic rows and a lateral trichomic group. Each paired tuft connected by a posterior trichomic row arranged along posterior margin of tergite (Figs. 60-62). Total number of trichomes of each tuft on tergites as follows: I (collum), 26 to 39 (Fig. 60); II to IV, 30 to 44 (Figs. 61, 62 and 90), and V to VII, 31 to 52. Lateral protuberance of tergite I with four trichomes (three in one case) in a row.

Legs. 13 pairs. Each article of legs bearing sensory setae except for femora V to XIII, tibiae XII and XIII, and first tarsus. Each coxa, trochanter and prefemur bearing a seta with an oval base furnished with low acute processes at apex (Fig. 77). Prefemora II to XII with 1 to 3 small aligned setae. Small femoral and tibial setae with an oval base furnished with 3 or 4 long spines (Figs. 78 and 80). Second tarsus antero-laterally with a small oval seta (Fig. 79). Chaetotaxy as follows: coxa I with one seta, II to XII (XIII in holotype) with two setae; trochanters and tibiae I to XII (XIII in holotype) with one seta; femora I to IV with one seta. Telotarsus antero-laterally bearing an anterior process with a spinal projection, an anterior setiform process, a thin posterior process and a posterior lamellar process (Figs. 81. and 82). Anterior valve of sexual organ with six oval setae and posterior valves, latter divided into two sub-valves by a transverse groove with five setae (Fig. 75).

Telson. Bundle of caudal penicil non-separated. Dorso-ornamental trichomes of caudal penicil consisting of 11 trichomes *a* (11 and 14 in holotype), one trichome *b* and 16 or 18 trichomes *c* (14 and 15 in holotype) (Fig. 86). Trichome *a* thick and broad at apex (Fig. 83). Bundle of telsonic trichomes separated into nidamental trichomes with three fish hook-like barbed hooks arranged in a line and straight normal trichomes without broading at apex (Figs. 84 and 85).

Remarks: This new species closely resembles *Macroxenodes bartschi* (CHAMBERLIN, 1922) as redescribed by NGUYEN DUY-JACQUEMIN & CONDÉ (1984), but differs in having three thick bacilliform dorsal sensilla separated from a second group of postero-ventral sensilla on antennal segment VI, the outer palpus of the gnathochilarium with 21 to 23 bacilliform sensilla, the granules on the labrum arranged anteriorly in two rows, and the femoral and tibial seta with an oval base furnished with 3 or 4 long spines.

Name: The species emphasizes Amazonia, the terra typica.

Macroxenodes sp.

Material examined.

One adult female (INPA), Brazil, Amazonas, environs of Manaus, Rio Solimões, Ilha de Marchantaria (59°58'W, 3°15'S), várzea, 47A/MA, 17.11.1981, J. ADIS et al. leg. We have not given this species a formal denomination because of the poor state of preservation of the specimen.

Description.

Measurements: Body length (without caudal penicil) 5.20 mm, second tarsal length of 13th leg 204 µm.

Head. Eight ocelli in each side.

Nineteen or 20 bacilliform sensilla located along dorso-distal part of antennal segment VI and irregularly divided into two rows; one setiform sensillum (*s*), with some spines between second and third anterior thick bacilliform sensilla (Fig. 91); one coelo-conic sensillum (*c*) not clearly observed due to bad preservation of antennae. Segment VII with dorsal sensilla of two thick bacilliform sensilla *a* and *p*, *s*

between *a* and *p*, and one posterior *c* (Fig. 92).

Three trichobothria of same size, with cylindrical funiculi.

Outer palpus of gnathochilarium with 22 and 23 bacilliform sensilla, segmented at apex, and middle palpus with 22 sensilla, with short non-segmented sensilla among these.

Labrum clothed with numerous small cuticular setae on surface, with granules arranged anteriorly in two rows, and armed with lamellar teeth at anterior margin. Clypeo-labrum with 12 setae.

Paired posterior tufts on vertex consisting of 14 or 15 trichomes in anterior row and of five trichomes in posterior row, respectively (Fig. 93). Length of rows slightly shorter than distance between them. These rows of trichomes distinctly separated from other trichomes on vertex.

Trunk. On each tergite, trichomes grouped in two separated oval areas. Total number of trichomes of each tuft on tergites as follows: I, 26 to 39; II to IV, 30 to 44 and V to VII, 31 to 52 (Figs. 94-96). Lateral protuberance of tergite I with four trichomes in a row.

Legs. Coxae II to XII bearing two setae, coxa I one seta and XIII no setae, trochanters with one seta, prefemora I to XII with one seta, each seta having an oval base furnished with low acute processes at apex. Tibiae I to XII, right prefemora II to X and left prefemora II to VIII bearing small setae with some long spines. Second tarsus with a small oval seta.

Telson. With 11 trichomes *a*, one trichome *b* and 12 trichomes *c*.

Remarks: *Macroxenodes* sp. differs from *Macroxenodes amazonicus* n.sp. by the more numerous sensilla arranged in one to two rows in the dorso-distal part of antennal segment VI and by the area of trichomes on tergites. This species rather resembles *Macroxenodes bartschi* (CHAMBERLIN, 1922) in number and arrangement of sensilla of antennal segments VI and VII, but differs by the outer palpus with 22 and 23 sensilla (13 in *M. bartschi*) and by the arrangement of trichomes of the tergites (NGUYEN DUY-JACQUEMIN & CONDÉ 1984: Figs. 1, 2, p. 721).

Resumo

São descritas duas novas espécies e uma espécie ainda não identificada/nominada de diplópodos penicilados do gênero *Lophoturus* BROLEMAN, 1931 (Lophoproctidae) e *Macroxenodes* SILVESTRI, 1948 (Polyxenidae), oriundas das proximidades de Manaus, Amazônia Central, Brazil: *L. adisi* n.sp., *M. amazonicus* n.sp., e *M.* sp.. *L. adisi* n.sp., se caracteriza por ter a placa molar com o ombro da placa molar dorsal da mandíbula intumescido, enquanto *M. amazonicus* n.sp. tem três sensilas dorsais espessas e de forma baciliforme, separadas de um segundo grupo posterior ventral de sensilas no segmento antenal VI, o gnatochilarium com 21 a 23 sensilas palpais e as setas femorais e tibianas com a base oval, tendo três ou quatro longos espinhos. Da mesma forma, *L. adisi* n.sp., que é a espécie dominante da localidade, tem sido investigada com relação aos seus estágios pós-embrionários e estrutura mandibular. Por outro lado, *M.* sp. é caracterizado por ter um maior número de sensilas localizadas na primeira ou segunda fileira da parte dorso-distal do segmento antenal VI, tendo os tricomas tergais agrupados em duas áreas ovais separadas, e 22 ou 23 sensilas palpais. *Plesioproctus* CONDÉ, 1964 mostrou ser um sinônimo junior de *Ancistroxenus* SCHUBART, 1947, n. syn. A sinonímia resulta de uma revisão do material de tipos de *Ancistroxenus tupiensis* SCHUBART, 1947, do Brasil. *Plesioproctus comans* (LOOMIS, 1934), de Trinidad, é formalmente transferido para *Ancistroxenus*, resultando em *A. comans* (LOOMIS, 1934), n. comb., uma espécie a qual é também o sinônimo senior subjetivo de *Ancistroxenus tupiensis* SCHUBART, 1947, n. syn.. *A. comans* foi documentado da região de estudo pela primeira vez, e seus estágios pós-embrionários estão inteiramente descritos. Uma chave a nível de gênero é apresentada para a família Lophoproctidae.

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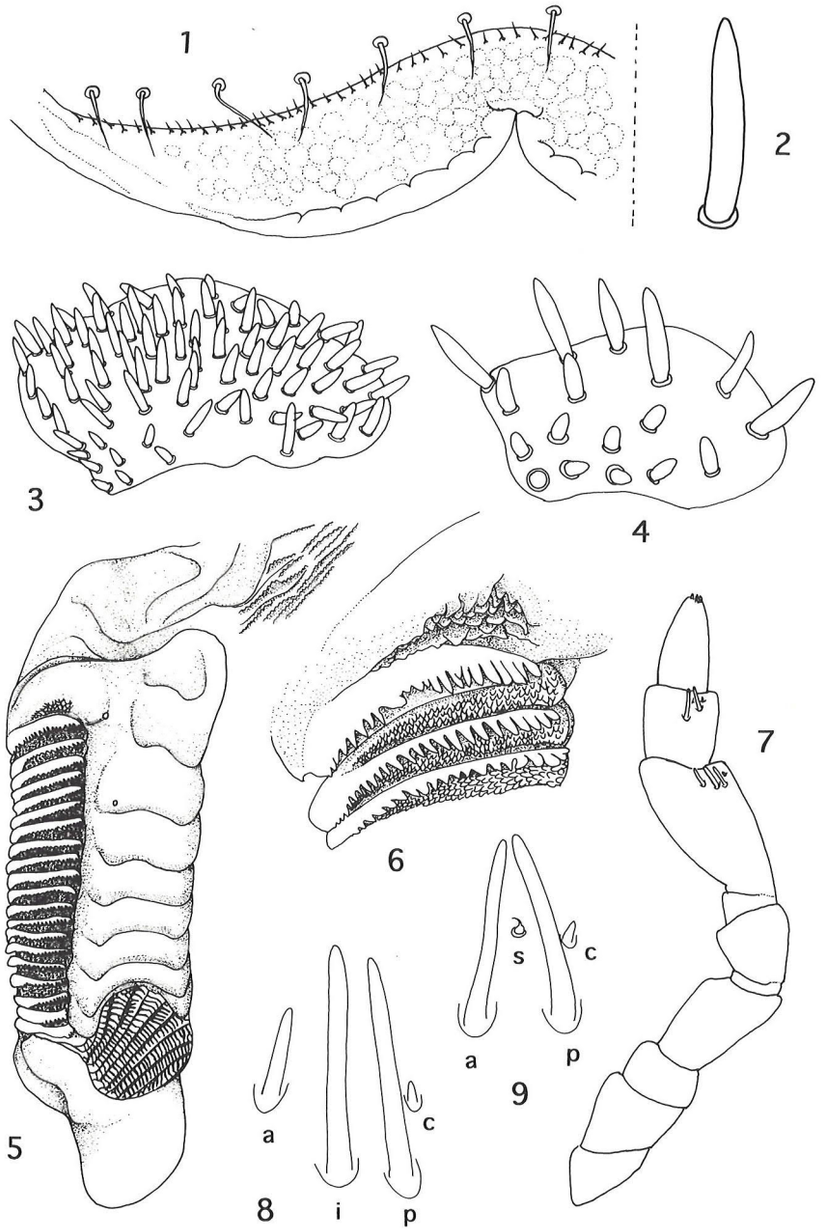
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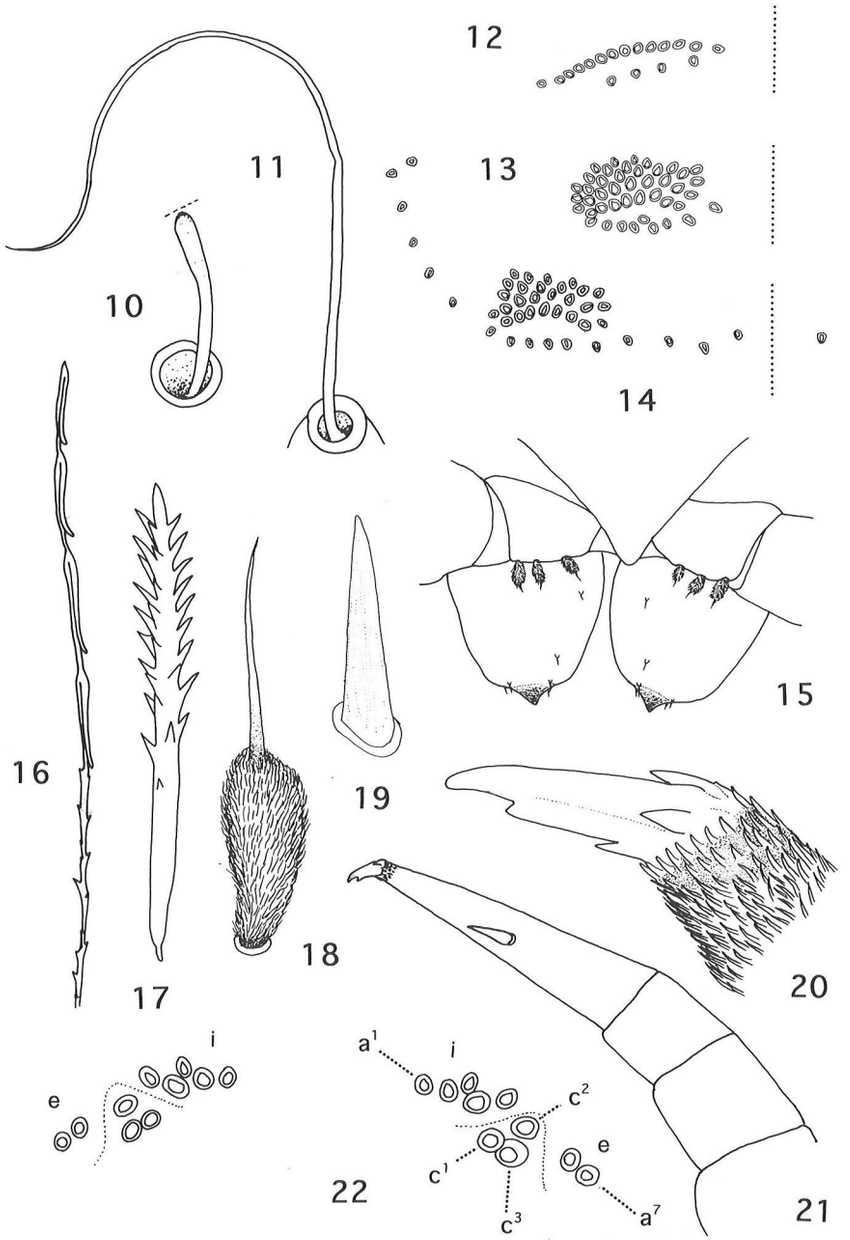
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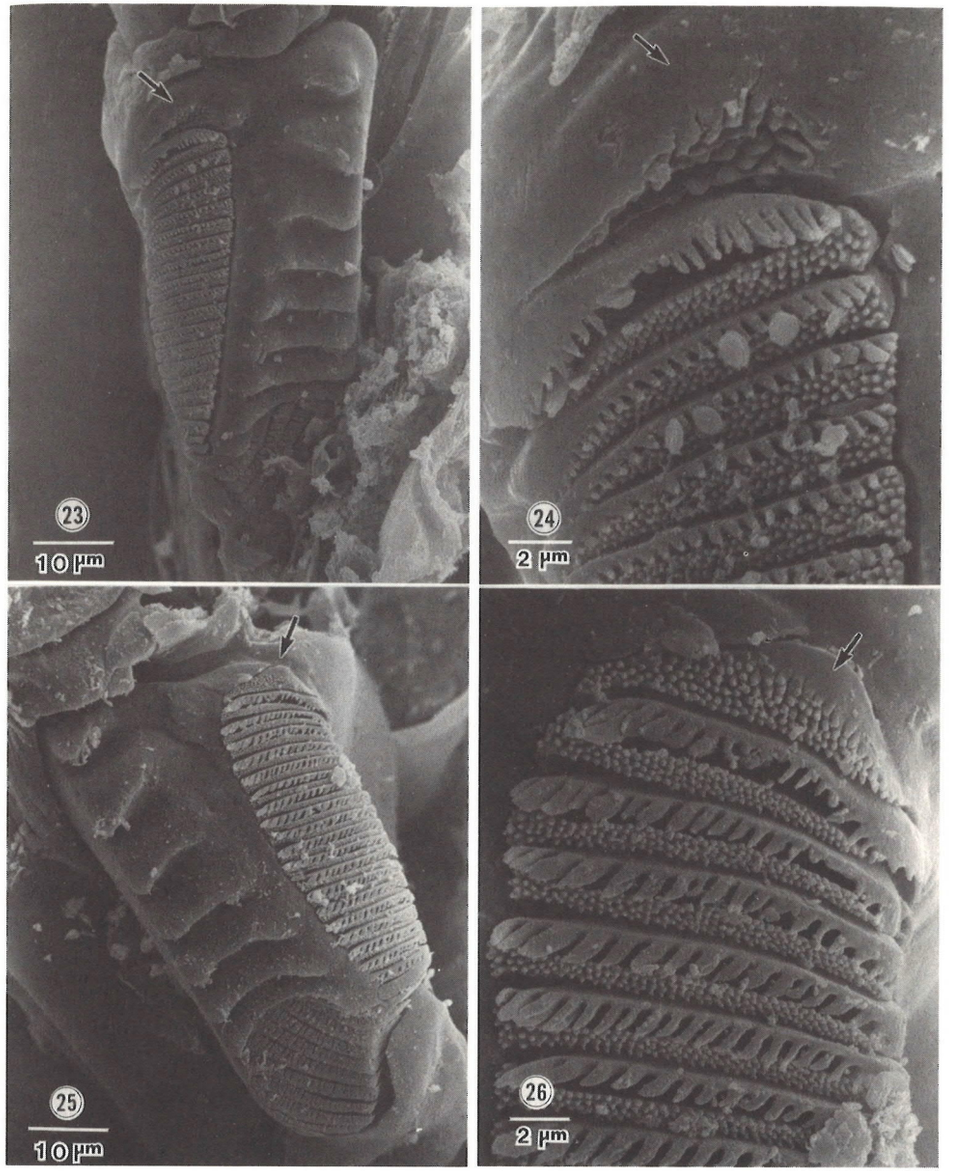
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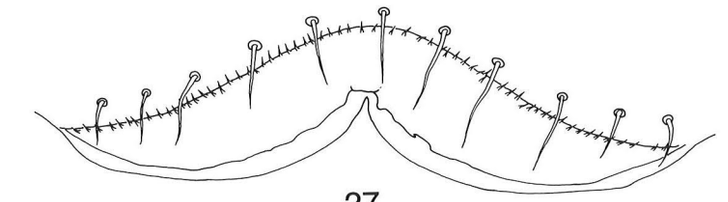
Figs. 1-9:
Lophoturus adisi n.sp., holotype, adult male.
1: Labrum; **2**: Sensillum on gnathochilarium; **3**: Nippleless palpi of gnathochilarium of male; **4**: Nippleless palpi of gnathochilarium of female; **5**: Left molar plate; **6**: Serrate limbs, granulated zone and bill-like protuberance with large granules; **7**: Antenna (right); **8**: Antennal sensilla on segment VI: *a*, anterior thick bacilliform; *i*, intermediate thick bacilliform; *p*, posterior thick bacilliform; *c*, coelo-conical; **9**: Antennal sensilla on segment VII: *s*, setiform.



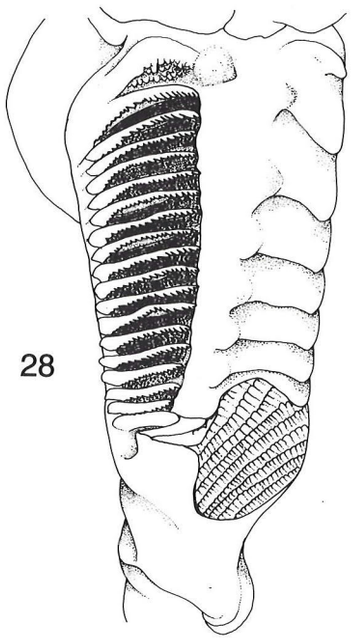
Figs. 10-22:
Lophoturus adisi n.sp., holotype, adult male.
10: Anterior trichobothrium; **11**: Posterior trichobothrium; **12-14**: Arrangement of trichomic pores (left side): **12**: Posterior vertex; **13**: Collum; **14**: Tergite II; **15**: Sexual organ; **16**: Barbed hooks of telsonic trichome; **17**: Tergal trichome; **18**: Sensory seta of leg; **19**: Spine on 2nd tarsus; **20**: Telotarsus; **21**: Tibia, 1st and 2nd tarsi and telotarsus of leg VI; **22**: Arrangement of pores of dorso-ornamental trichomes on caudal penicil: a^1-a^7, trichome *a*; c^1-c^3, trichome *c*.



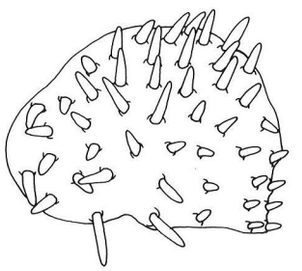
Figs. 23-26:
SEM photographs of molar plates of *Lophoturus adisi* n.sp. and *L. okinawai* NGUYEN DUY-JACQUEMIN & CONDÉ, 1982.
23: Left molar plate of *L. adisi* n.sp.; **24**: Molar plate shoulder of left molar plate of *L. adisi* n.sp.; **25**: Right molar plate of *L. okinawai*; **26**: Molar plate shoulder of right molar plate of *L. okinawai*; **24** and **26**: Enlargement of anterodorsal end of molar plate in the respective species; arrow indicates the molar plate shoulder.



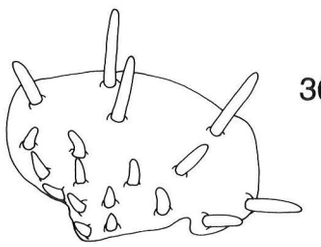
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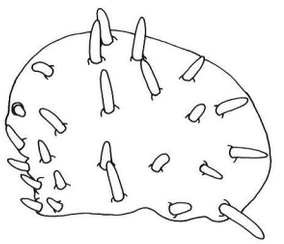
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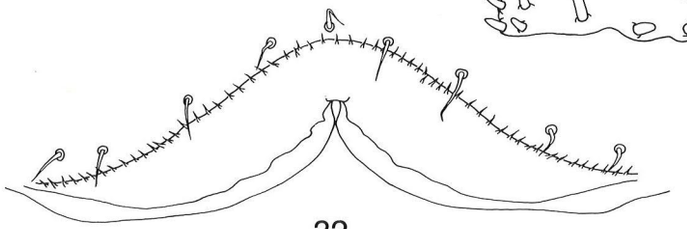
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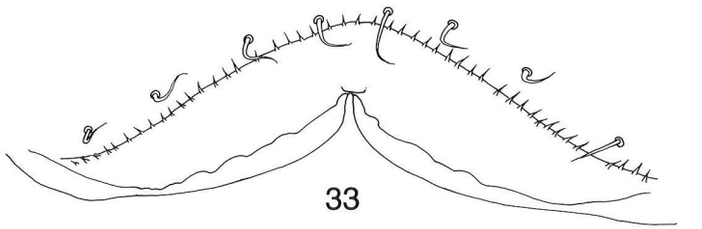


31

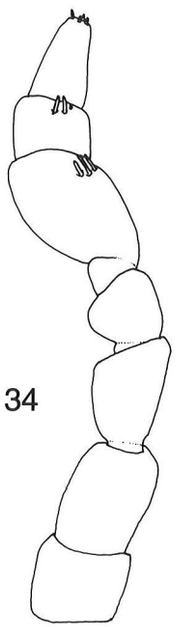


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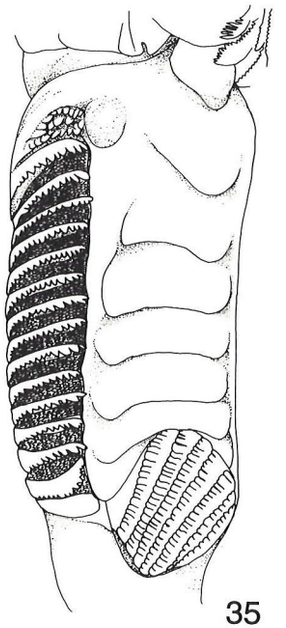
Figs. 27-32:
Larval stadia VII and VI of *Lophoturus adisi* n.sp.
Stadium VII: **27**: Labrum; **28**: Left molar plate; **29**: Nippleless palpi of gnathochilarium of male; **30**: Nippleless palpi of gnathochilarium of female.
Stadium VI: **31**: Nippleless palpi of gnathochilarium of male; **32**: Labrum.



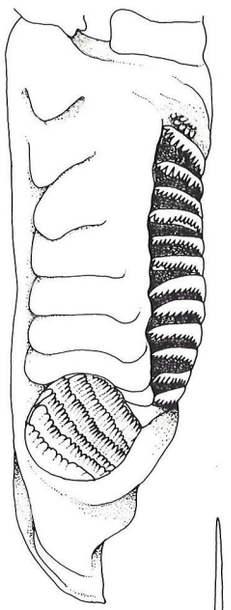
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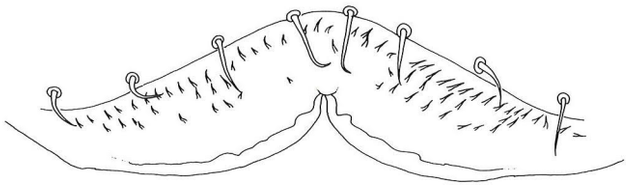
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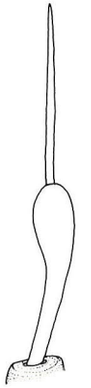
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36

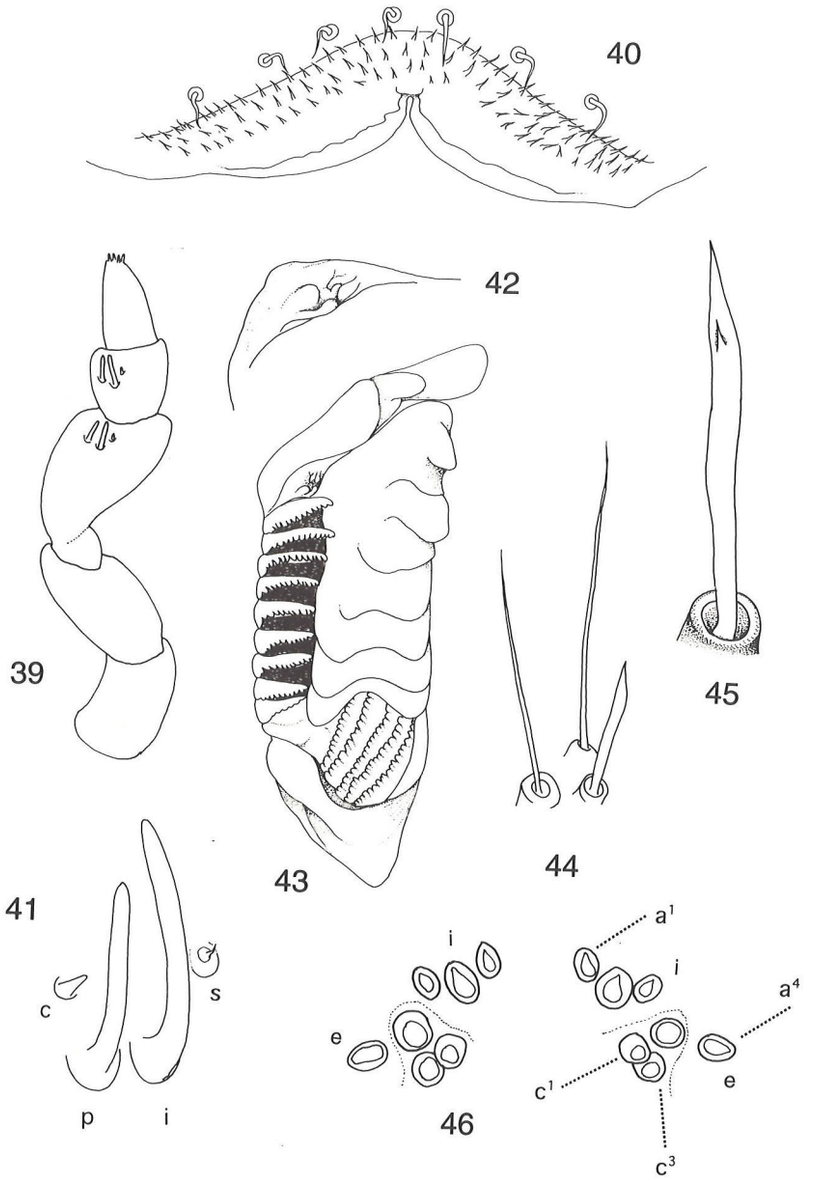


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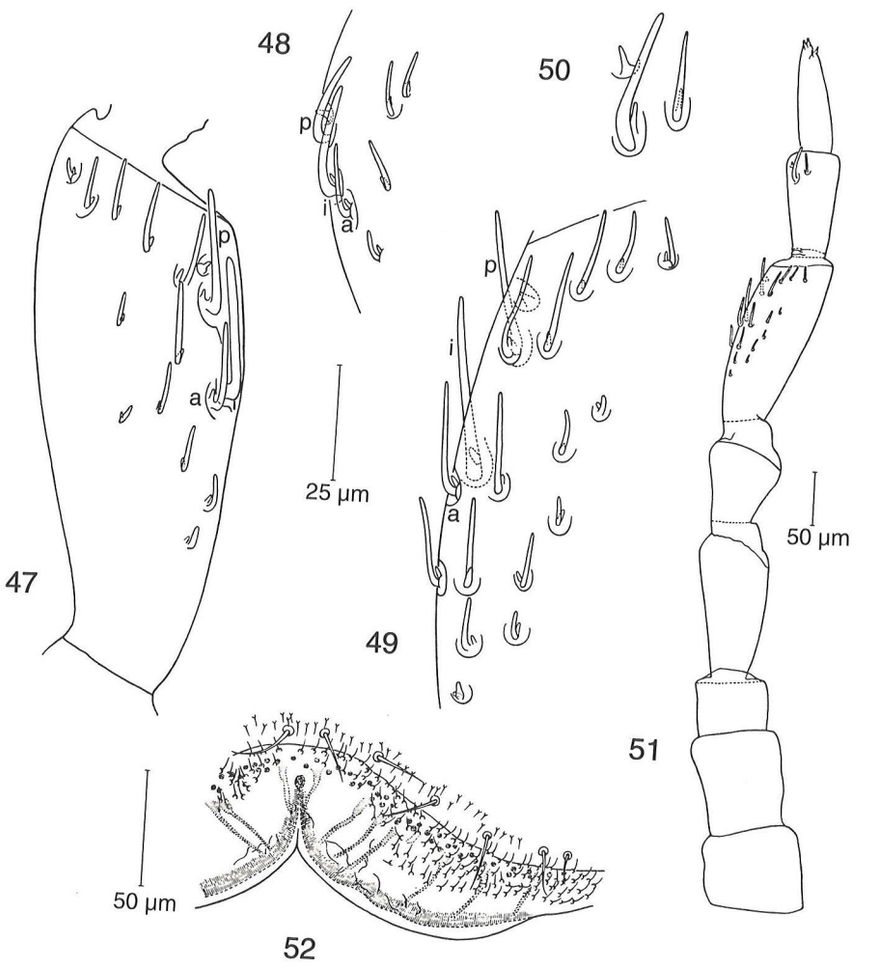


38

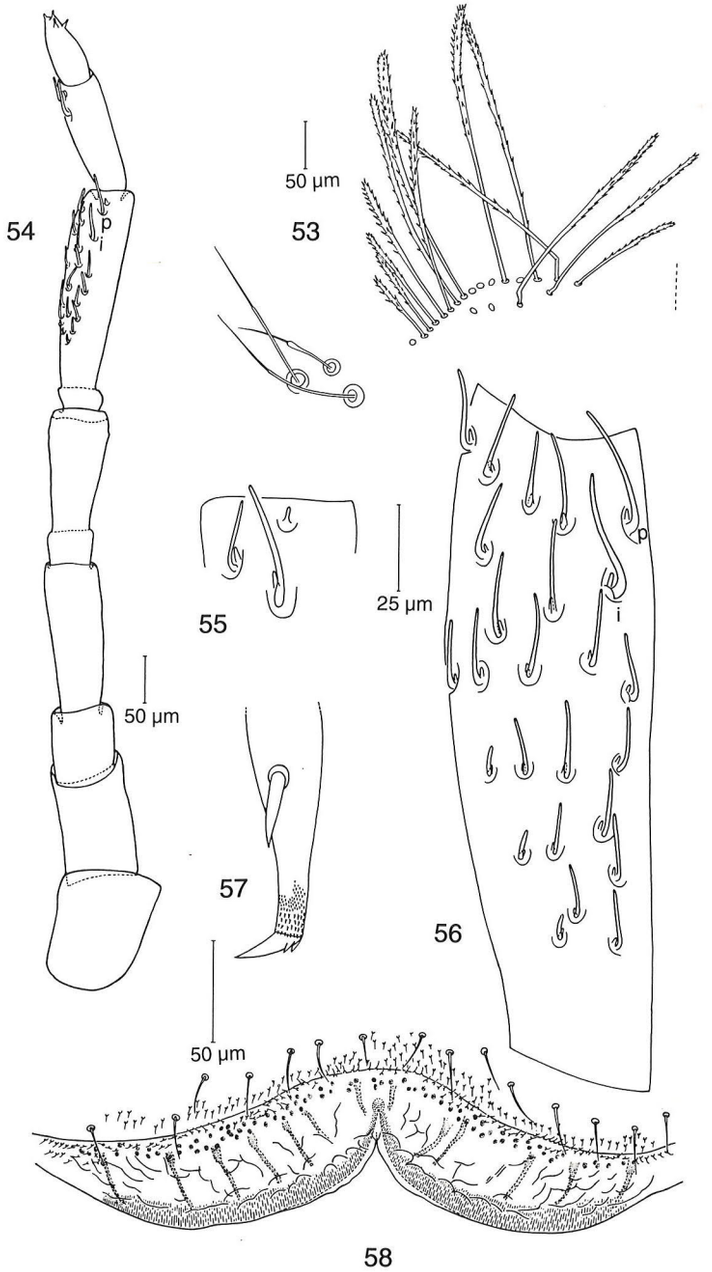
Figs. 33-38:
Larval stadia IV and II of *Lophoturus adisi* n.sp.
Stadium IV: **33**: Labrum; **34**: Antenna (right); **35**: Left molar plate.
Stadium II: **36**: Right molar plate; **37**: Labrum; **38**: Anterior trichobothrium.



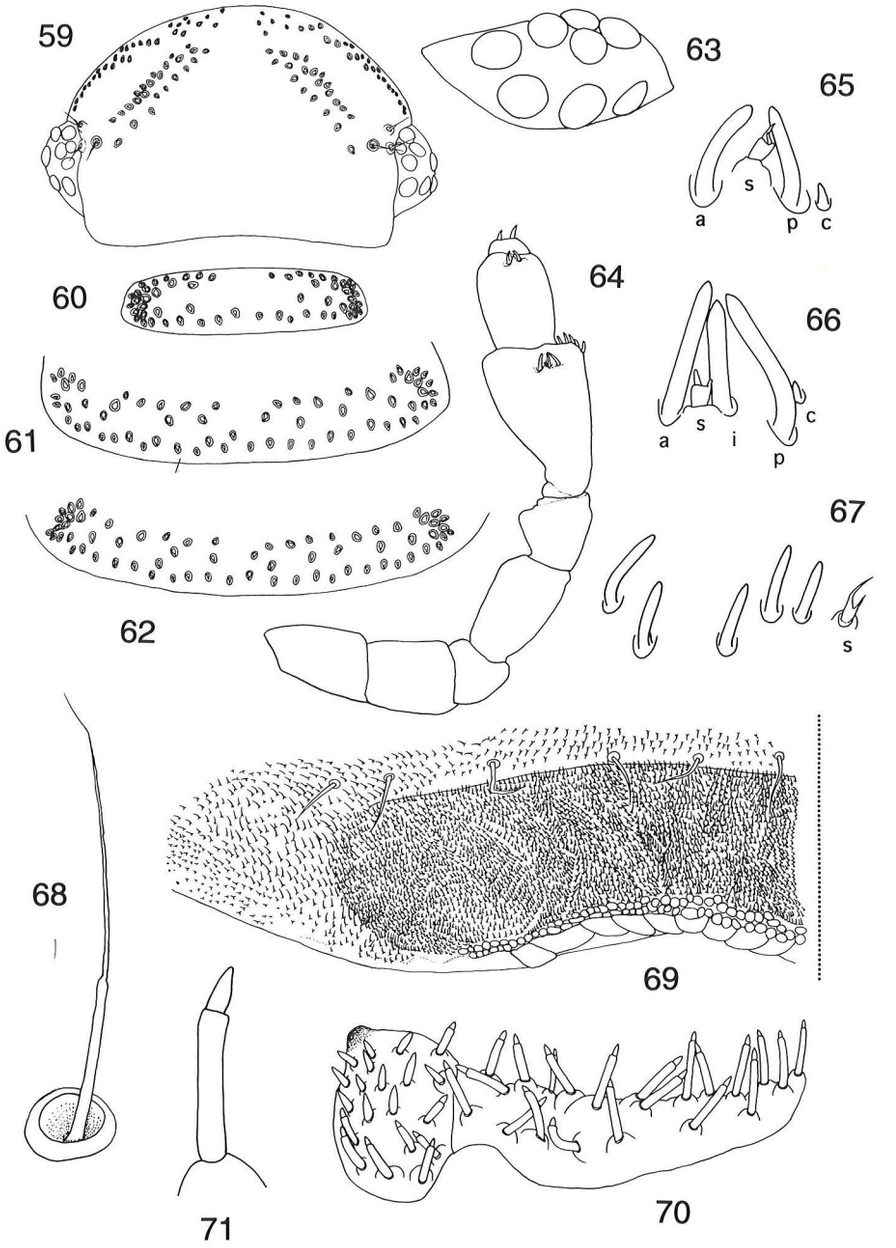
Figs. 39-46:
Larval stadia II and I of *Lophoturus adisi* n.sp.
Stadium II: **39**: Antenna.
Stadium I: **40**: Labrum; **41**: Antennal sensilla on segment III: *i*, intermediate thick bacilliform; *p*, posterior thick bacilliform: *c*, coelo-conical; *s*, setiform sensillum; **42**: Dorsal molar plate shoulder; **43**: Left molar plate; **44**: Three trichobothria; **45**: Anterior trichobothrium; **46**: Arrangement of pores of dorso-ornamental trichomes on caudal penicil: a^1-a^4, trichome *a*; c^1-c^3, trichome *c*.



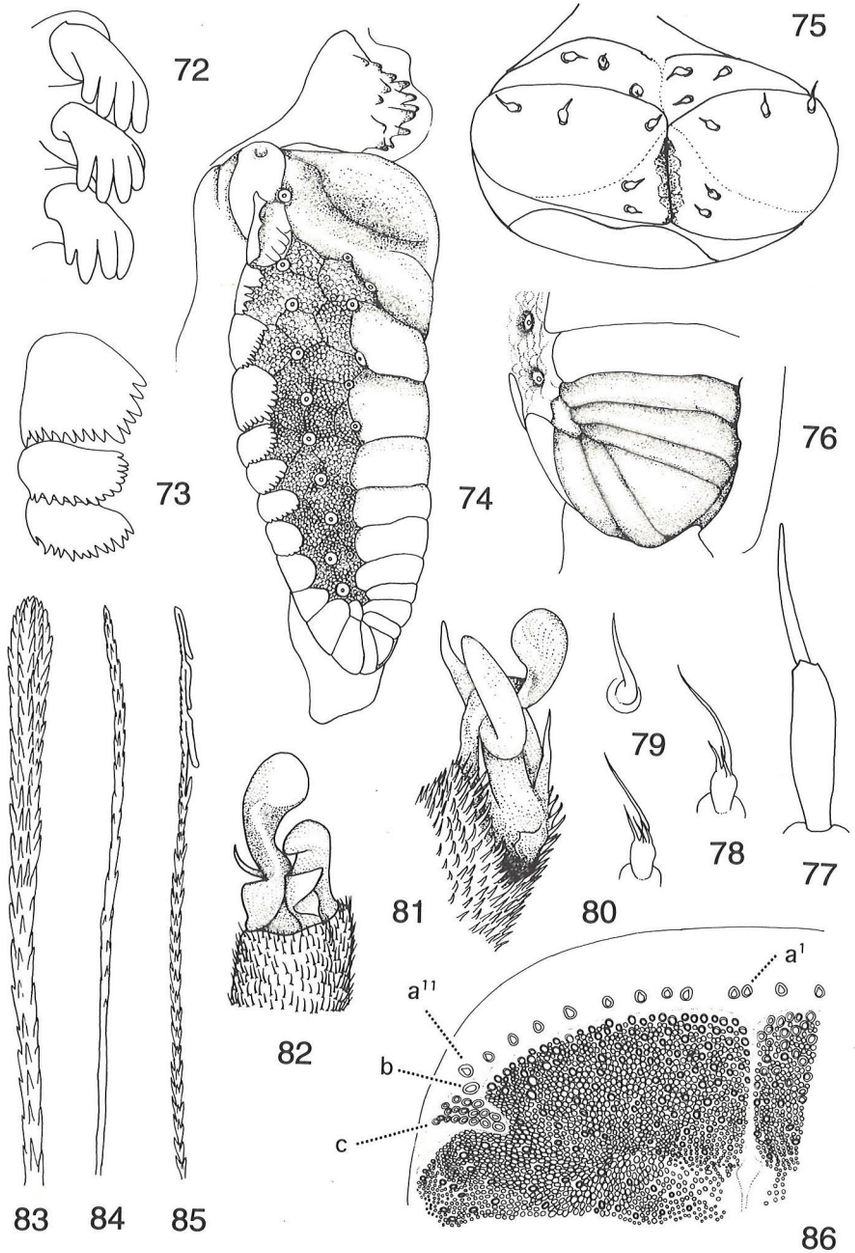
Figs. 47-52:
Ancistroxenus comans (LOOMIS, 1934), n.comb.
47: Sensilla on antennal segment VI of larva with 8 pairs of legs; **48**: Sensilla on left antennal segment VI of larva with 4 pairs of legs; **49** and **50**: Detailed sensilla on segments VI and VII of the right antenna of the female with 12 pairs of legs; **51**: Right antenna of the female with 12 pairs of legs; **52**: Labrum (left part) of the adult female.



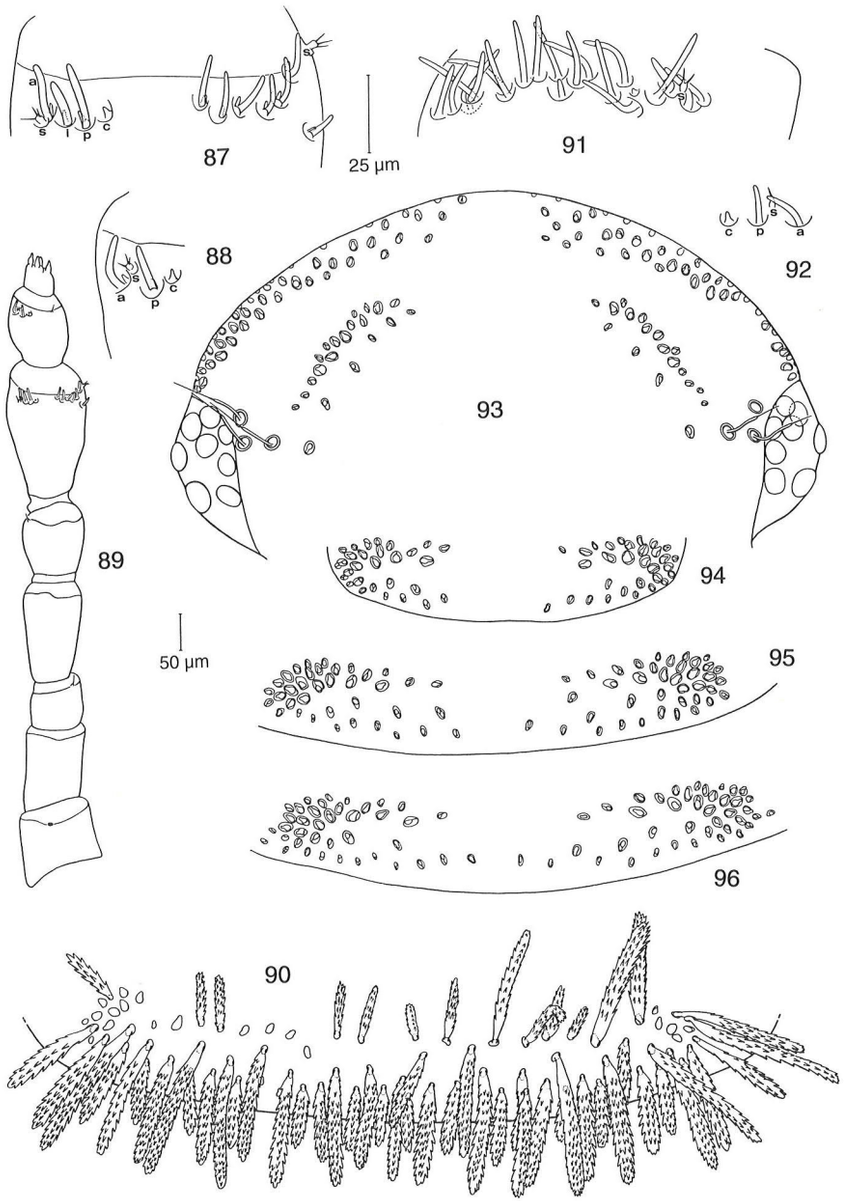
Figs. 53-58:
Ancistroxenus tupiensis SCHUBART, 1947, adult, syntype.
53: Left posterior tuft of trichomes and left trichobothria of female lectotype; **54**: Right antenna of lectotype; **55** and **56**: Sensilla on right antennal segments VII and VI of female No. 3; **57**: Spine of tarsus II and telotarsus of left leg of female No. 2; **58**: Labrum of female No. 2.



Figs. 59-71:
Macroxenodes amazonicus n.sp., paratype, adult, female.
59: Head (dorsal); **60**: Collum; **61**: Tergite II; **62**: Tergite III; **63**: Ocelli (right); **64**: Antenna (right); **65**: Sensilla on antennal segment VII: *a*, anterior thick bacilliform, *p*, posterior thick bacilliform, *c*, coeloconical, *s*, setiform; **66**: Antennal dorsal sensilla on segment VI: *i*, intermediate thick bacilliform; **67**: Antennal ventral sensilla on segment VI; **68**: Trichobothrium; **69**: Labrum (right); **70**: Gnathochilarium (left); **71**: Segmented sensillum on gnathochilarium.



Figs. 72-86:
Macroxenodes amazonicus n.sp., paratype, adult, female.
72: Branched comb teeth of mandible; **73**: Serrate limbs of molar plate; **74**: Left molar plate (inner); **75**: Vulva; **76**: Six submolar processes (inner-lateral); **77**: Seta on subcoxa, trochanta and prefemur of leg; **78**: Seta on femur of leg; **79**: Seta on 1st tarsus of leg; **80**: Seta on tibia of leg; **81**: Telotarsus of leg (antero-lateral); **82**: Telotarsus (ventral); **83**: Dorso-ornamental trichomes of caudal penicil; **84**: Straight normal trichomes without broading at apex of caudal penicil; **85**: Trichome with barbed hooks of caudal penicil; **86**: Arrangement of trichomic pores of teson: a^1-a^{11}, trichome *a*, *b*, trichome *b* and *c*, trichome *c*. (right).



Figs. 87-96:
Macroxenodes amazonicus n.sp., holotype, female and *Macroxenodes* sp., adult, female.
Figs. 87-90: *Macroxenodes amazonicus* n.sp., holotype, female.
87 and **88**: Detail sensilla on segments VI and VII of the right antenna; **89**: Right antenna; **90**: Trichomes of tergite III. Figs. 91-96: *Macroxenodes* sp., adult, female.
91 and **92**: Detail sensilla on segments VI and VII of the left antenna; **93**: Dorsal head; **94-96**: Insertions of the trichomes on the tergites of collum and segments II and III.